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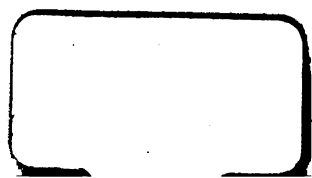
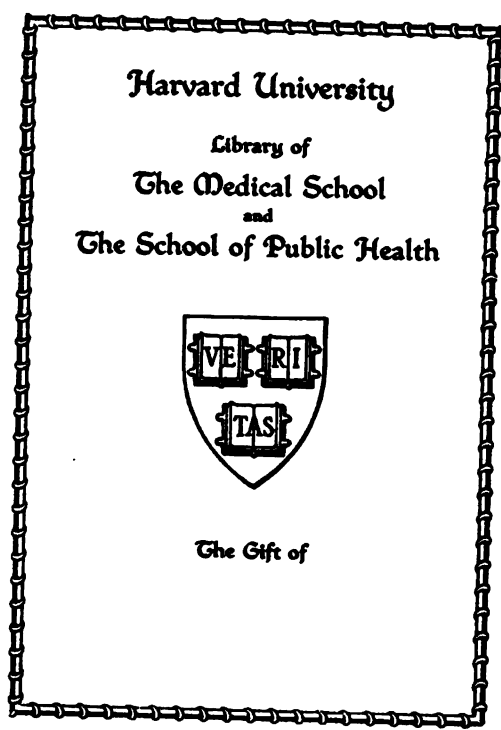
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THE
NEW YORK
MEDICAL JOURNAL.

EDITORS:
WM. A. HAMMOND, M.D., and E. S. DUNSTER, M.D.

VOLUME VI.



NEW YORK:
MOORHEAD, SIMPSON & BOND, 60 DUANE STREET.

1868.

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NEW YORK:

AGATHYNIAN PRESS, 60 DUANE STREET.

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NEW YORK MEDICAL JOURNAL:

A MONTHLY RECORD OF
MEDICINE AND THE COLLATERAL SCIENCES.

Vol. VI.] OCTOBER, 1867. [No. I.

Original Communications.

ART. I.—*The Practice of Laryngoscopy and Rhinoscopy.*—
By ANTOINE RUPPNER, M.D., New York.

SECTION I.

SURVEY OF THE HISTORY, DISCOVERY AND DEVELOP-
MENT OF PRACTICAL LARYNGOSCOPY AND
RHINOSCOPY.

FROM the beginning of the present century the efforts of physicians have been chiefly directed to the correct diagnosis of diseases.

Brilliant as have been their achievements, still the correct diagnosis of the diseases of the larynx as well as those of the components parts of the naso-pharyngeal cavity remained, if not impossible, yet obscure, by reason of these parts being hidden from view.

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To recognize the changes in the pharynx, larynx and posterior nasal cavities, it was customary to cause the patient to open the mouth, and depress the tongue at the same time, by means of a spatula, when the velum palati and its pillars, the pharynx, and sometimes even the epiglottis were brought within sight; but for the examination of the interior of the larynx this remained insufficient.

Efforts have not been wanting to devise means or to construct instruments, whereby the eye of the physician might be enabled to unveil that which was hidden. If we except Bozzini,* whose experiments were not directly applied to the larynx, but who described an instrument whereby to throw light into any cavity of the human body accessible from without, Senn,† of Geneva, appears first in 1827 to have conceived the idea, and to have taken the first practical steps towards examining the interior of the larynx, by means of a small mirror introduced into the mouth.

Then followed Dr. B. C. Babington,‡ in 1829, March 18th, who laid before the Hunterian Society of London, his "Glottiscope," a small oblong piece of looking-glass, set in wire, with a long shank. The reflecting portion was placed against the palate, whilst the tongue was held down by a spatula, when the epiglottis and the upper part of the larynx became visible in the glass.

* P. H. Bozzini, Weimar, 1807, and Hufeland's Journal, 1806. Vol. XXIV, p. 107.

† Gazette Hebdomadaire de Médecine et de Chirurgie. Paris: 1863. Page 263.

‡ The London Medical Gazette. London: 1829. Vol. iii., p. 555.

Dr. Babington afterwards had his mirror made of polished steel, and in one he combined a tongue depressor with it. He is also reported to have used oval shaped mirrors, convenient in case of enlarged tonsils; and to have illuminated the throat by reflecting the light of the sun from a mirror held in the left hand.

Trousseau & Belloc* in 1837, refer to a laryngeal speculum which was made for them by a Mons. Sellique, an ingenious mechanic, who had himself been subject to laryngeal phthisis. This instrument which consisted of two tubes, through one of which light was thrown on the glottis, whilst through the other the image of the glottis was reflected from a mirror placed at its guttural extremity, was, however, difficult of application, since not one in ten could bear its presence in the throat. Soon it was declared void of practical utility and abandoned. Although Bennati† is said to have been enabled by it to obtain a view of the glottis, which statement however is strongly doubted, as Bennati,‡ then Physician-in-Chief to the Italian Opera in Paris, does not allude to the fact in the least in his writings on this subject.

Baumes of Lyons§ about 1838, laid before the Medical Society of that city, a laryngeal speculum of a somewhat complicated construction, but about the

* *Traité pratique de la phthisie laryngée, de la laryngite chronique, et les maladies de la voix*, par Trousseau et Belloc, Paris: 1837, p. 179.

† *Opus cit*: Trousseau et Belloc. p. 180.

‡ *Etudes physiologiques et pathologiques sur les organes de la voix humaine*, Paris: 1833 and 1834.

§ *Compte rendu des travaux de la Société de Médecine de Lyons*: 1840, p. 62.

practical utility and the results of its application no record has been published.

In 1840, Liston, in his *Practical Surgery** mentions the successful employment of this instrument in medical practice in the following words, page 417, "Ulcerated glottis: a view of the parts may be sometimes obtained by means of a speculum; such a glass as is used by dentists, on a long stalk previously dipped in hot water, introduced with its reflecting surface downwards, and carried well into the fauces."

Beyond a doubt it is established, that the late Dr. Warden, in the year 1844, employed a powerful Argand lamp before which he placed a prism of flint-glass, by means of which contrivance he succeeded in seeing disease of the glottis in two cases.† These are so accurately described by him in all their details, that Warden must be regarded as the first observer who had by artificial light examined an unhealthy larynx in the living.

Dr. Avery, of London, is also reported to have worked successfully, from 1844, till his death in 1854 cut short his investigations, in the construction of a laryngoscope and other instruments for the examination of internal organs, but he has published nothing on the subject.‡

Thus matters stood, when in the year 1855, the Spaniard Manuel Garcia, a singing teacher in London,

* *Practical Surgery*, with 50 engravings on wood; by Robert Liston, Esq.

† *London Medical Gazette*. New series, 1844, vol. II., page 256. And *British and Foreign Medico-Chirurgical Review*, January, 1863

‡ *Introduction to the Art of Laryngoscopy*, by Dr. Yearley, 1862.

published his observations on the formation of the human voice, in an interesting paper, entitled "*Physiological Observations on the Human Voice*," in the Proceedings of the Royal Society.*

Garcia was the first, then, to employ the laryngeal mirror for physiological purposes; the first who succeeded in obtaining a view of his own larynx, so as to describe accurately the parts he saw in the mirror and their respective motions. Having long studied the anatomy and physiology of the larynx as the organ of voice, a great desire to see the movements must have been the natural consequence. How he at length obtained the desired object he describes himself. Standing with his back to the sun, he held a looking-glass in his left hand before his face; the sun's rays were thus reflected by the glass into his open mouth. Then he introduced a dentist's mirror—previously warmed—into the back of his mouth, and thus he saw the reflection of his larynx in the looking-glass. Auto-laryngoscopy was discovered; it was an indisputable fact, and to Garcia belongs the credit of having demonstrated it. His method is to-day the simplest and best for auto-laryngoscopic examination.

Strange to say, as Senn's, Babington's and Warden's observations were sown without fruit; as Liston's teachings were forgotten, so Garcia's brilliant results were received with distrust, nay, positively doubted and rejected. Still, in spite of the continued opposition of those who, either from old age, pride, caste, or ignor-

* Observations on the Human Voice, Philosophical Magazine and Journal Science, vol. X. and Gazette Hebdom. de Méd. et de Chir. 16 Nov., 1855.

ance, oppose all progress in experimental or practical science, the seed that had been sown by Garcia came to be the germ of many important results and discoveries.

Dr. Ludwig Türck, Professor at the University of Vienna, and one of the Physicians-in-Chief to the general hospital, ignorant at the time, as he distinctly states, of the experiments and writings of Garcia,* had, after a long series of most varied experiments, made during the summer of 1857 on dead subjects and on patients under his care, in the general hospital, succeeded in giving the laryngoscope so convenient a shape as suited it best for the purpose of examination both of the larynx and adjoining parts in a great number of individuals.†

When demonstrating to Professor Ludwig in the summer of 1857 the interior of the larynx on a patient in his ward, Türck was for the first time made aware of Garcia's researches.‡ Garcia's investigations, however, were purely physiological; Türck, on the other hand, was seeking for larger results, viz, means for correct diagnosis from which would spring a more rational

* Türck, *Clinic of the diseases of the Larynx and Trachea*, Vienna, 1866, page 2: I desire here explicitly to state, notwithstanding the assertion to the contrary in many of the works published in Europe on this subject, from my knowledge of the facts in the case, and from my acquaintance with Professor Türck as a man of veracity, that he was actively engaged in laryngoscopic researches before he had ever heard of Garcia's experiments, or before he ever had read Garcia's articles on the subject published in the *Transactions of the Royal Society*.—[AUTHOR.]

† Report of the Imp. R. Society of Physicians of Vienna; Meeting of April, 1858. In the year of 1857, Prof. Türck treated, in seven wards of his division of the hospital, 1,873 patients, among which there were only 275 cases of the nervous system. The greater number of the remainder suffered from diseases of the throat and chest.—*Ibid. Clinical Researches; London, 1862.*

‡ Op. cit. page 2.

and successful treatment of the various affections of the throat. Türk used direct sunlight for his demonstrations, in the absence of which, during a part of the winter, from the hospital wards, his experiments were discontinued.

Towards the end of that same year (1857) Dr. Czermak, Professor of Physiology at Krakau, but at that time sojourning in Vienna, who had heard of the flattering results of Professor Türk's investigations, borrowed the latter's mirrors for the express purpose of repeating Garcia's physiological experiments and for further investigations.*

Whilst Czermak repeated and verified Garcia's experiments with Türk's mirrors, he, Türk, did not remain idle, but improved upon his mirror until he brought it to its present simple perfection—a mirror now universally in use. During the clear days of the latter part of winter, he resumed also his examinations on patients in the wards, and the result answered his most sanguine expectations.

Again, on the 16th day of March, 1858, Czermak accompanied by University Docent and Secundar Physician, Dr. Gruber, visited Professor Türk, and sought and obtained permission to use the borrowed mirror in the syphilitic wards of the hospital. It was not many days† before it became evident Czermak was deeply impressed with, and perceived the practical value of the instrument, which became so potent in his hands, and for which he made most strenuous efforts to secure its

† Op. cit. page 203.

† Weiner Medig. Wochb.

recognition by the whole civilized world. Setting to work with great zeal and energy with the mirrors of Professor Türrck, he first sought to render us independent of sun-light by employing artificial light, using for that purpose the large reflector of the ophthalmoscope, thus rendering the laryngoscope available at all times for practical purposes. In his first article on this subject* Czermak called attention to the fact, that by means of the laryngeal mirror the eye becomes the sure guide of the hand. Further, he asserted the possibility of inspecting (in a manner similar to the larynx) the posterior surface of the soft palate, the posterior openings of the nasal fossæ and the superior parts of the pharynx, by simply turning the little mirror upwards and by raising the velum up as far as practicable.

This was the advent of the kindred art of Rhinoscopy.

The foregoing pages sufficiently establish the fact, that for the discovery of the art of laryngoscopy and its kindred rhinoscopy, as well as for the progressive steps of improvement and development which have led to their adoption in the diagnosis and treatment of disease we are chiefly indebted to Türrck and Czermak.

The gradual development of this subject is illustrated by the numerous, interesting, scientific, and instructive publications of these two gentlemen. Every learned reader must, however, regret that there should have arisen a controversy, on the whole uninteresting and unprofitable to the mass of the medical profession, as to the claim of priority in the art of Laryngoscopy.

* Op. cit.

Where both have fought well and gained renown, when success pours into the lap of both its reward, who shall decide between the two?

As an act of justice, however, and for the benefit of those who have neither time nor inclination to read all the published evidence, pro and con, of the case, the controversy shall receive a passing notice.*

To prove priority we have to answer:

1st. Who conceived the idea and made use of the laryngeal mirror first?

2d. Who brought it to its present simple state of perfection?

3d. Who demonstrated first its usefulness in the diagnosis and treatment of disease by actual experiment?

4th. Who demonstrated first the art of rhinoscopy?

5th. Who labored most to compel for this art the acknowledgment due it from the medical world?

If we exempt, as we justly may, former and imperfect attempts at laryngeal examination, and acknowledge Garcia's claim to originality in the matter of auto-laryngoscopy, being obviously quite distinct and indisputable; the contest is narrowed down to Czermak and Türk. Türk deliberately states,† and this is the first printed reference we have on this vexed question—that being ignorant of the work of his predecessor, Garcia, he happened accidentally upon the idea early in 1857 (if not before) to employ a small mirror in the examin-

* We draw our inferences from the works of the two persons most interested, viz, Türk and Czermak.

† Op. cit. Page 2, line 16.

ation of diseases of the larynx. Professor Ludwig, in the summer of 1857, first informed him of Garcia's experiments. Great were the difficulties, but, in spite of obstacles, in many cases he accomplished his object. Winter interrupted his experiments for a time. Then (winter 1857) Czermak borrowed Türck's mirrors, and in March, 1858, obtained permission to make use of the identical mirrors in the syphilitic wards of the hospital.* Did Türck remain idle during the latter part of that winter and the first months of 1858? No! he continued to improve on his original mirror till it reached a perfection then which nothing better has to this day been produced in spite of various tinkerings with the same—such as making the mirrors square, then with round edges, oblong and oval, and lastly with a convex border above and a concave one below. One and all, so many attempts to make the most simple, practical instrument complicated, they have failed.

March 27, 1858, Czermak published his first paper,† in which he urgently recommended the laryngeal mirror to the medical profession for practical experiments. Up to this date Türck had published as yet nothing on the subject, but at a first meeting of the Medical Society of Vienna, April 9, 1858, (the first after Czermak's article appeared), Türck deliberately and openly claimed priority in the matter, which Czermak not only did not dispute, but published a second

* Op. cit. Page 3.

† Op. cit., page 3. Czermak Wiener Med. Wochenschrift, No. 13, March 27, 1853.

article,* in which he, in the clearest manner possible, acknowledged Türrck's claim to priority. How he could do otherwise we cannot conceive. What he accomplished in this new field of discovery at first, he brought about with Türrck's instruments, which he borrowed, and which were the result of Türrck's ingenuity and study. The one furnished the other with *the thing* already discovered, necessary to accomplish *another thing* dependent wholly upon the first for its accomplishment; for we look upon the laryngeal mirror as the laryngoscope. Without it, laryngoscopy falls to the ground. Would the inventor of a machine, who delivers or lends his invention to another friend for a short time to repeat the same experiments for which the original machine is intended, (should the latter succeed in the use of it,) would the inventor of that machine therefore, we ask, be rightfully regarded as the inventor? or would he be considered as having relinquished his claim to his friend who had borrowed the machine; although the latter may even have added improvements, leaving, however, the original principle of construction by which the utility of the original machine may have been increased?

So far, Türrck's claim to priority is fully and incontrovertibly established by facts which ought to satisfy the inquirer, whatever sophistry may have been employed, or may hereafter be used, to explain these facts away. Nor will—aside from the claim of priority—the labors of Prof. Türrck in this department permit

† Wiener Med. Wochenschrift, No. 16, Extra April 17, 1858.

him to remain in the background. His late great, learned and superb work on the *Diseases of the Larynx and Trachea** places him in the very foremost position in this department of science. It will ever be pointed out as one of the best German classics in medical literature. It will be long before it will have a rival in its own or kindred languages. To such genius it is a pleasure and privilege to do homage and to render our acknowledgments.

The Commissioners of the Institute Imperial of France, (section of medicine and surgery), at the course for the prize Montyon, March, 1861, unwilling to enter into a discussion as to the relative merits of priority of the two competitors, Türck and Czermak, but being satisfied that the researches of both had equally contributed to render laryngoscopy a useful art, susceptible of good service in the diagnosis of the diseases of the pharynx and larynx, granted to both of the competitors an honorable mention, accompanied by a prize of 1,200 francs each, placing Türck's name first.

Thus having claimed justice for Professor Türck, we shall not overlook Czermak's merits. He is entitled to our praise; it is hard earned. Discussing the rival claims of discoverers, Sydney Smith is reported as having said: "That man is not the first discoverer of any art who first says the thing, but he who says it so long and so loud and so clearly that he compels mankind to hear him—the man who is so deeply impressed with the importance of his discovery that he will take

* Wien, 1866.

no denial, but at the risk of fortune and fame, pushes through all opposition, and is determined not to perish for a want of a fair trial." On grounds like these, Czermak has the strongest indisputable claims for our recognition of his merits. He first rendered artificial light available in our art. It was he who reduced the art to a system; he who, from the very first, insisted and laid stress upon the importance of the laryngoscope in the diagnosis and the treatment of laryngeal diseases, and illustrated the correctness of his sayings by practical results in practice. To him, also, are we indebted for the art of Rhinoscopy. Czermak, finally it was, who labored much at home and in foreign lands, till he became the great teacher of the arts of Laryngoscopy and Rhinoscopy, as he had been one of their principal improvers.

Semeleder, Voltolini, Lewin, Störk, Ruete, Merkel, Traube, Middeldropf, in Germany; Mandl, Maura-Bourouillon, Bataille, Cusco, and Fauvel, in France; Mackenzie, Gibb, and Johnson, in England, received their first impulses from him, having witnessed his demonstrations.

The result of their many important investigations, in this department, is recorded in our medical literature. Surely, the claim to priority may be dismissed, without feeling, by one whose name is so indissolubly, so praiseworthy, so honorably interwoven with this subject.

This historical survey shows that the discovery and development of the arts of Laryngoscopy and Rhinoscopy, and all real and permanent progress made in the

same, dates only from the beginning of 1857. Ten years have sufficed to develop this branch of science to a perfection, so as to conquer for it the recognition and support of the whole scientific world. As late as 1857, Mr. Porter, an English surgeon, wrote: "How is a man of experience, when he meets with a case of laryngeal disease, to know whether it is caused by an œdematous condition of the submucous tissue—by a chronic thickening of the mucous membrane itself—by laryngeal ulceration—by destruction of the cartilages—by the presence of abscess, or tumor, or by any other of those numerous affections which dissection so frequently shows us to be the occasion of death?" And he suggests that: "Perhaps, by reason of the difficulty of the subject, it will be long before we possess the same accuracy of information with reference to the affections of the windpipe that has been attained in other diseases."*

What a change has been effected since Mr. Porter wrote the above, and that change has been brought about, as before said, in ten years! The larynx has ceased to be an organ hidden from sight; it is brought within the range of our vision as much as the eye is, and more so than the ear. Dr. Johnson's answer to Mr. Porter's question, fittingly, may close this discussion. "The man of experience has now only to *look* into the larynx, and he will *see* what is the form of the disease with which he has to deal."

* Quoted by Dr. Johnson in his *Lectures on the Laryngoscope*, 1864.

SECTION II.

THE PRACTICE OF LARYNGOSCOPY.

A. Essentials for Laryngoscopic Examination.

THE essentials for the purpose of undertaking a laryngoscopic examination are : a source of light from which the rays are thrown either directly, or as is usual indirectly, into the throat by means of a mirror—a reflector—from whence these rays, by the use of the small mirror (laryngeal mirror) placed in a position obliquely beneath the palate, are cast into the cavity of the larynx to illuminate the latter in such a manner that its image is reflected in the laryngeal mirror, and seen by the observer.*

A. The Laryngeal Mirror—Laryngoscope—Kehlkopfschenspiegel of Prof. Türck, is simply a small looking-glass, “ whose end is to hold, as 'twere, the mirror up to nature.”†

It is, as it were, the only armament we absolutely need to examine the larynx by direct sunlight without reflection. What a store of knowledge this little instrument has revealed to us ! How instructive its lessons ! What benefits it enables us to bestow upon our suffering fellow beings ! This small mirror, either manufactured of the best polished steel, or of glass, set in a silver frame, is fixed into a stem of metal, and this into a handle of sufficient length, so that the insertion

* Victor von Brun's *Laryngoscopische Chirurgie*. Tübingen, 1865.

† Quoted by Dr. Johnson.

of the skin into the handle will rest upon the first phalanx of the middle finger, and the extremity of the handle is supported by the soft parts forming the angle of union between the thumb and middle finger. Mirrors intended for operative purposes must have longer handles. The stem ought to be inserted firmly into the mirror at an angle of 120° – 125° as first pointed out by Türk,* whose round mirror is now universally in use, and superior to any other known. Mirrors vary also in size, and such choice must be made as is best adapted to the condition of the person to be examined. Gradually a tolerably large one can be introduced, where at first the smallest size was hardly tolerated. Finely silvered glass mirrors are preferable to those made of steel or other metal; the latter soon lose their polish, quickly cool, and become dimmed by the breath of the patient.

FIGURE I.



Mirrors of different diameter.

* Op. Cit. Page 4.

FIG. 2.

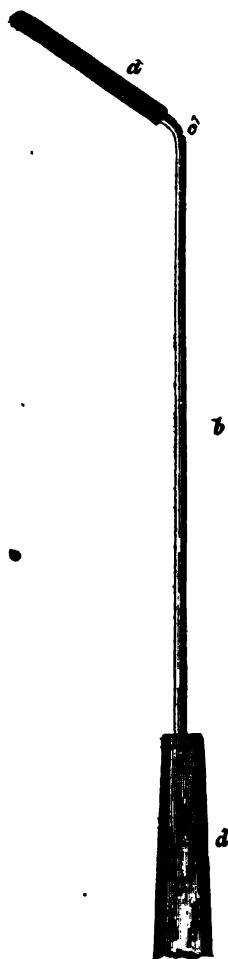


FIG. 3.



B. *The reflector* is a round concave mirror of varying diameter, fastened to the forehead or placed in front of one eye of the operator, if perforated, for the purpose of reflecting the light of the sun, or of a lamp, into the throat. Czermak, Semeleder, Von Bruns and others have each adopted and recommended different ways of handling the reflector during examination. Every operator has his preference. Where, for want of sun-light, direct examinations are rarely made, and these in haste, the reflector placed on the forehead—rather than in the front of the eye—will soon be appreciated as both convenient and advantageous. Ex-

**Profile of Prof. Turck's Mirror, and
half profile of the same.**

The handle is not given in full length. tioned position, are more readily executed, by beginners in the art especially, and are as satisfactory in their results as when the mirror is placed before either eye, which requires special

training, without yielding superior results. In stationary apparatus, such as Czermak's, Van Bruns, Tobold's, Lewin's, and others, the reflector is attached to the illuminating apparatus itself. When used with sunlight, the patient is placed with his back to the sun and the operator sits opposite him. In case a lamp is employed, it is to be placed to the right side of the patient's head, so that the flame is about on a level and a little behind his right ear. By good sunlight, with a laryngeal mirror and a reflector a perfect examination of the larynx can be made without further addenda.*

C. *Light*, which is either natural or artificial, is a third essential in laryngoscopy. Sunlight can be supplied for this purpose either without or with reflectors. In the first position, without reflector, which is the most simple, the patient faces the light whilst the operator introduces the mirror into the mouth and places it obliquely against the palate. In the second position, already described with reflectors, the patient is placed with his back to the sun and light guided into the throat by means of the reflector.

There can be no question but that the sun gives the clearest, and purest light—more desirable for our purpose than any other—provided we could have its benefit at all times and in all places, could ward off the great heat from the patient's head, which a lengthy examination renders insupportable, and could stay his course for the time, so as to abolish the necessity, both for patient and

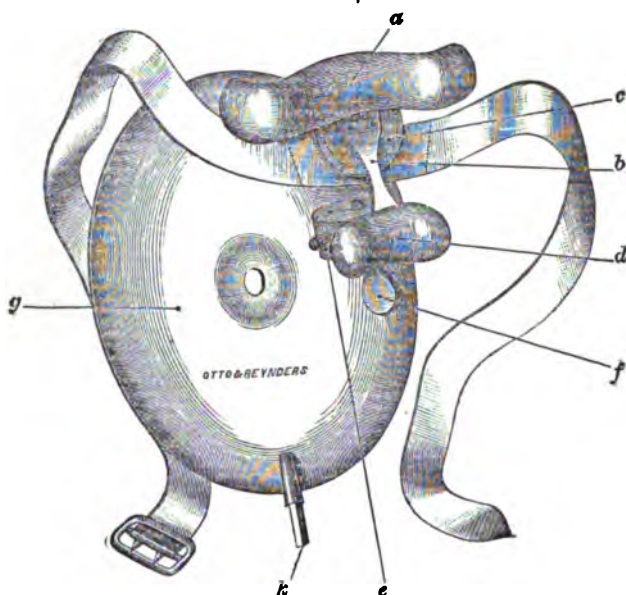
*Professor Türk's reflector, with spring-supporter, seemingly belonging here, will be spoken of hereafter under *caput light*.

doctor, for changing position every few minutes, for the purpose of keeping pace with his constant progress. Dependent then as we are upon the sun's favor, and rarely—especially within our city walls—the recipients of his benefactions, we are mostly, if not entirely, dependent upon artificial light in the application of our art.

The simplest contrivance in this respect for our purpose is the German student's lamp, or an Argand-gas burner, where the luxury of gas is enjoyed. Of the lamp and its position we have already spoken, which, with the reflector is all that is needed to make illumination perfect.

Our description of the reflector (on page 17) would be incomplete, did we not here introduce Prof. Türck's simple, ingenious, and eminently practical combination of both reflector and supporter.

FIG. 4.



DR. TÜRK'S Reflector supported by a Spring.

a. Steel-spring projecting at both ends, upholstered with flannel and covered with black silk.

b. A narrower, quite strong somewhat bent steel-spring, bearing considerable resistance, inserted at right angles into spring *a*.

c. A round strong metal plate at the point of union, to the anterior side of which is attached an elastic band with buckle, which serves as head band.

d. Square upholstered saddle, attached to the lower, broader extremity of the descending spring, (*e*) which is to be placed at the apex of the nose.

e. Socket joint at the anterior surface of the saddle into which is inserted the ball, attached to the posterior surface of the reflector.

f. Screw to render the joint more or less firm, or to remove the mirror altogether.

g. Reflector of $3\frac{1}{2}$ -4 inches diameter taken from Türck's apparatus for illumination; the handle

h. Can be used to change the position of the mirror.

This supporter will readily adapt itself to the forehead, is very light, and presses therefore, not uncomfortably upon the root of the nose, a great objection to all similar contrivances.

Rotation is easily accomplished, and the reflector

placed readily in the middle above the eyes, or replaced before either of them.

To Professor Türck also belongs the credit of having first used for illumination in laryngoscopic examinations the so-called Schuster-Kugel, (Shoemaker's globe). Both globes and lenses have been used without reflectors.

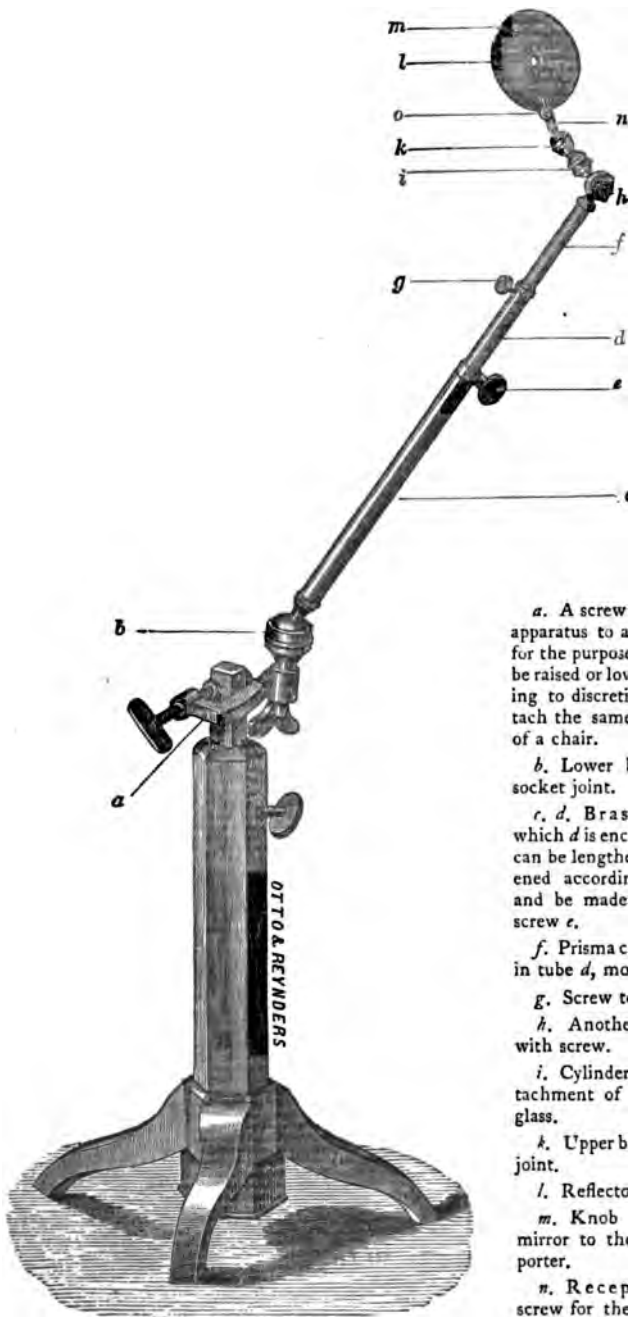
Moura's Pharyngoscope differs from the above simply in the fact, that a lens is substituted in the apparatus for the glass globe.

A simple, compact apparatus appeared in France some two years ago, but not generally in use, in which a metallic reflector is placed posteriorly to the light, and a bull's-eye lens or condensor anteriorly to the same, giving a good volume of light, besides being easily managed.

By fastening a second mirror to the bull's-eye lens, the apparatus answers perfectly for auto-laryngoscopic purposes. In examinations at the bedside, where gas is not to be had, we are able, if we can obtain simply a candle or a common lamp, to accomplish all we desire with it.

To speak of all the instruments which have been constructed to direct and intensify the volume of light, such as Czermak's, Lewin's, Von Bruns', Winterich's, and those of several others not less active experimenters, would occupy too much space. We shall only describe two, those of Türck and Tobold, which are in daily requisition in our operating room, the practical merits of which in daily use for a long time, we have fully learned to appreciate above all others that have been tried from time to time by us.

FIG. 5.



TÜRCK'S Independent Apparatus for illumination.

a. A screw to fasten the apparatus to a stand made for the purpose, which may be raised or lowered according to discretion, or to attach the same to the back of a chair.

b. Lower ball and socket joint.

c, d. Brass tubes of which *d* is enclosed in *c* and can be lengthened or shortened according to desire, and be made fast through screw *e*.

f. Prisma confined within tube *d*, movable.

g. Screw to the prisma.

h. Another flat joint with screw.

i. Cylinder for the attachment of a magnifying glass.

k. Upper ball and socket joint.

l. Reflector.

m. Knob to attach the mirror to the spring supporter.

n. Receptacle with a screw for the reception of the nail-like attachment (*o*) extending from the reflector.

The same apparatus is also manufactured with three brass tubes fitting into one another, instead of only two, as in the accompanying drawing. This is called the large apparatus; both from the fact that the brass tubes fit into one another, are very compact, and the reflector being separated, the whole is easily packed and carried about.

MODUS OPERANDI.—*The Lamp and its position.*

Any lamp, from a study to a common house lamp, answers the purpose, provided the flame be white, which can be regulated through a glass-chimney of proper dimension and sufficient draught.*

The lamp is to be placed behind, and on the right of the patient's head, who is seated on a chair. Its flame ought to be about an equal distance behind the ear, as the latter is distant from the angle of the mouth. This may serve as a rule when the concave mirror—the reflector used,—is $6\frac{1}{2}$ inches in diameter. In proportion as the diameter of the reflector is increased the lamp must be moved further back.

The apparatus itself is in front of the patient and to his right. In the absence of a special stand it can be screwed to the back of a chair, upon which a person is seated to steady the same. The operator seated in front of the patient, adjusts now with his left hand the brass tubes to the required light,—the prisma remaining undisturbed, turns the concave mirror by careful rotations towards the lamp and directs the concentrated

* Cusco in Paris, 1861, increased intensity of light, by incorporating Oxygen gas with the flame of a common lamp.

rays of light into the cavity of the mouth to illumine the palate and uvula.

A few well directed motions of the reflector, executed immediately *after the* laryngeal mirror is introduced, will afford a perfect view of the parts to be examined.

It is but just to state, in this connection, that to acquire the dexterity to examine patients promptly and accurately with this apparatus, demands more than ordinary application and tact, as compared with the inventions of other observers; but once the difficulty overcome, and the left hand practised in the rotation of the reflector, the least motion of which will also result in a change of the picture presented to the eye of the observer—the patient student will be amply rewarded by the result of his investigations, as the tourist who has been climbing a steep mountain-path, after many privations and exposures, is rewarded by the sight of a majestic and unsurpassingly grand landscape.

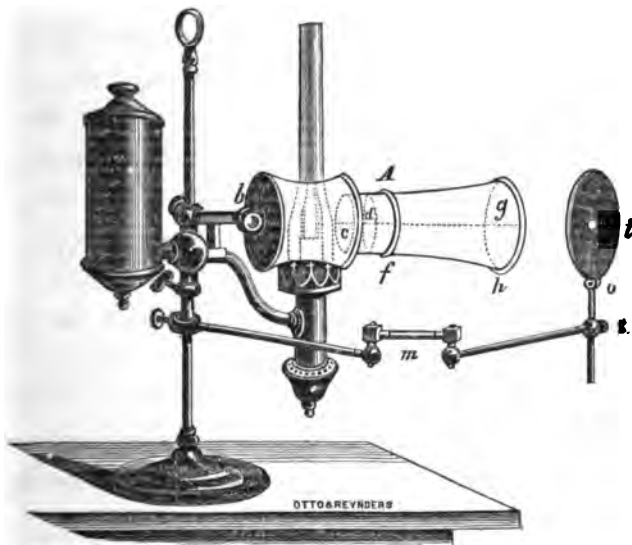
Dr. Tobold's apparatus, remaining yet to be described, has proved itself in our daily practice as the most easily managed, simple in its construction, compact in form, and answering all requirements. It can safely be recommended to beginners in the art, and cannot be dispensed with when once used. For this, as well as much other valuable labor in laryngoscopy, we are indebted to Tobold.

His apparatus, a representation of which we give below, consists of three convex lenses, *c*, *d*, *g*, (vide figure 6), enclosed in a brass tube *a*, which is screwed to a common study-lamp, and at *b* has a movable arm supplied with a screw, whereby the lens can be brought

in close proximity with the flame of the lamp, thereby increasing the intensity of light. The lenses *c* and *d* are in close proximity to one another, and can, for the purpose of cleaning, be removed at *f*, as also can lens *g*, by unscrewing the tube at *h*; *m*, is a brass arm with three joints fastened to the lamp, to the extremity (*s*) of which the handle attached to the reflector (*i*) is screwed; at *o* is a simple Charnier joint, by which to move the mirror back and forward.

It is unnecessary to move the reflector itself, as any side motion of it is easily gained by the movable arm, which acts with perfect facility. A brass rod with screw, an Argand gas-burner, and sufficient rubber tubing, enables us to dispense with the lamp altogether, and to set up and employ this apparatus anywhere where gas has been introduced. Such is the apparatus (besides that of Prof. Türk), we daily employ and which we recommend.

FIG. 6.



Tobold's Apparatus for Illumination.

ART. II.—*Statistical Results derived from 3,000 cases of Pregnancy and Child-birth at the Lying-in Hospital in Christiania.*—By Drs. F. C. FAYE, Professor and Head-physician; and H. VOGT, Assistant Physician to the Hospital. Translated from the Norwegian by Dr. D. F. LINCOLN, of Boston.

[The present is one of a series of articles I have lately received from Prof. Faye, of Christiania, who is well known to gynecologists as a very scientific and reliable observer. The papers are so instructive, they are so inaccessible in the original to the American reader, and my friend Dr. Lincoln's translation of them is so admirably done, that I have felt it would be selfish for me to retain the manuscript for my own private use. The tables will be interesting alike to the statistician and to the teacher of midwifery, and, I trust, may be made the basis for extended comparisons by some one of our own countrymen. To the medical jurist they will be peculiarly interesting, as furnishing one step towards the establishment of an international obstetric code, the necessity of which, as regards craniotomy, intentional abortion, and the induction of premature labor, I have for more than ten years insisted upon. HORATIO R. STORER.]

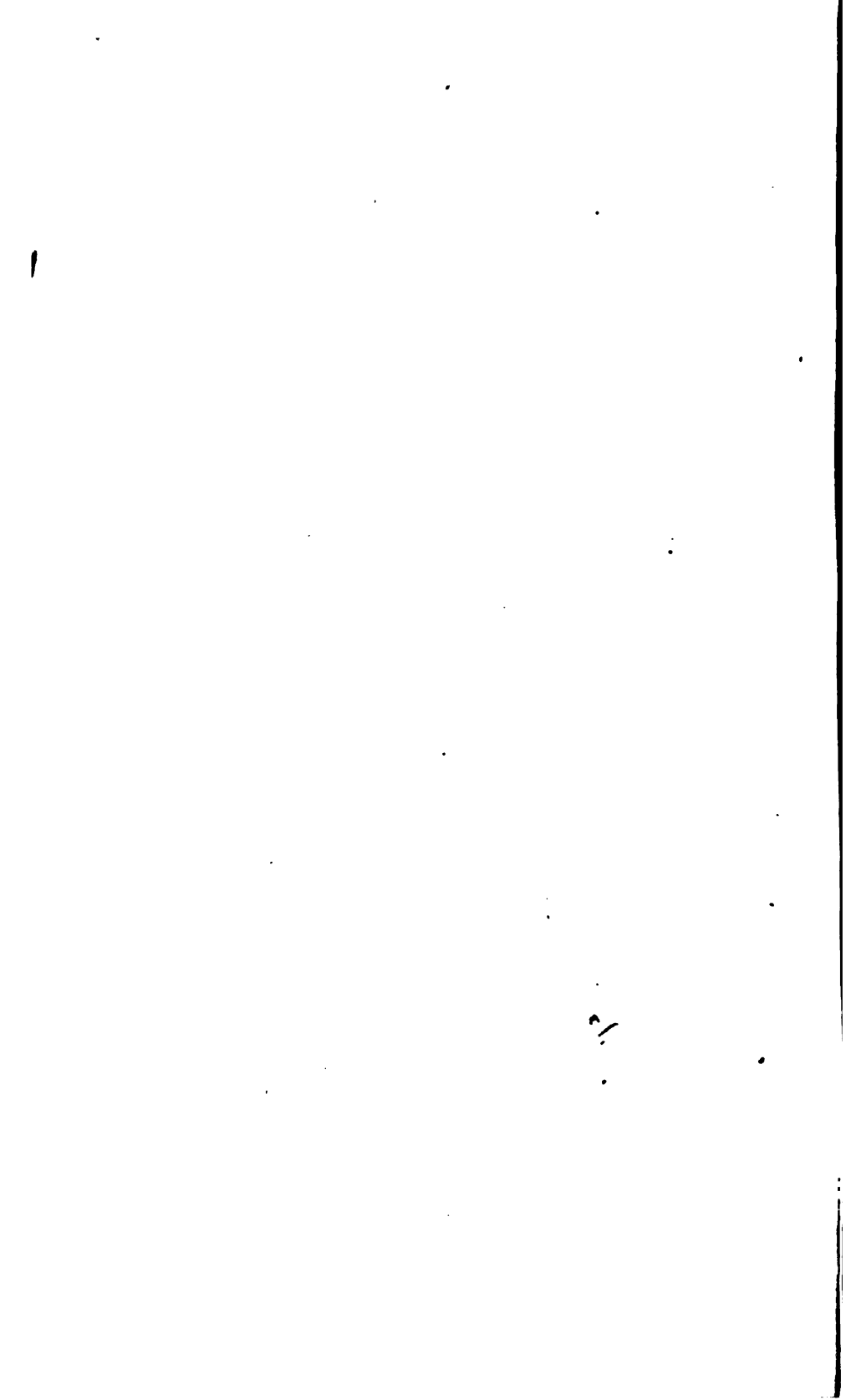
THE lying-in hospital in Christiania, which is supported by the State with the object of serving as an institute of practical instruction for the medical students at the Norwegian University, as well as for women intending to become midwives, commenced operations in 1818, in a hired house, and many times shifted its quarters, until, in 1837, it was permanently established in the building for whose erection the Diet had voted funds.

The present head-physician, who entered upon his office in 1846, in a series of contributions to the "*Norwegian Magazine of Medical Science*," gave an account of what had been done in the institution from its foundation till the end of the year 1863, and took occasion in that account to treat of many circumstances concerning pregnancy, birth and infancy, giving occa-

sionally cases by way of illustration. But, inasmuch as the records of the hospital give information on many points which require the support of a large number of observations in order to receive their real value as contributions to science, we have thought it of interest to arrange for publication all the materials that have been at hand. For want of a uniform and orderly system of journal-keeping during the period from 1818 to 1845, we were obliged to base our work upon a less number of observations than the history of the hospital might have furnished ; but, since the number is quite large in spite of this limitation, the results may, it is hoped, be offered as a very important accession to the mass of our knowledge drawn from many sources.

The number of women received into the hospital in the period mentioned (1819, 1845), of which, for the above reasons, we can make no special mention, makes up a table of 3,038 (of whom 67 died), which was annexed to the first communication published by the present head-physician, Prof. Faye, in the *Norwegian Magazine of Medical Science*, 1847. The number of children born amounts to 3,048. With regard to the incomplete details during that period, we may point for information to the article alluded to.

The number of births, furnishing the basis for the following comparisons, amounts to 3,000 upon an average, and represents the period from 1846 to the middle of 1863, in which one of the authors (Prof. Faye) served as head-physician. The whole number of births for this time is certainly somewhat larger (3,030) ; but the round number gives a basis which suits very well on



The married women amount altogether to $716=23.9$ per cent. of the entire number.

A part of these women, whose external circumstances have been favorable, are allowed separate apartments and have had the so-called best care of the institution. As to the influence which this circumstance, together with a greater individual power of resistance, may be supposed to have exercised upon their health and the amount of fatality attending confinement, a separate account will be subsequently given.

The entire number of unmarried women is $2,284=76.1$ per cent. Servant-girls make up much more than the half of all the unmarried, or 86.6 per cent., a sad testimony to the state of their morality, or perhaps rather to the character of the temptations to which they are exposed in Christiania, as in other large cities under like circumstances.

It has been stated that girls working in factories are more than commonly liable to become pregnant, and perhaps this is true to a certain extent; but when we consider that many of this class afterwards marry the men be whom they have been made mothers, we may perhaps find their condition to be not much worse than that of servant-girls.

Of the unmarried mothers belonging to a somewhat higher class in the community, many have come hither from Denmark and from Sweden in order to go through their childbed in secret.

The proportion of public women who have borne children at the hospital seems not to be large 3.1 per cent. of the entire 3,100 or 4.1 per cent. of the unmar-

ried. Many, however, of these women bear children outside of the hospital, since they often possess pecuniary means; and it is also a fact that this vocation rather weakens the faculty of conception, as might be inferred from the fact, that women who while living as prostitutes were sterile or bore only one child, afterwards when married have borne several.

NUMBER OF TIMES PREGNANT.

Pregnant for the first time	.....	1,632	=	55.1 per cent.
" " 2d "	.....	843	=	28.5 "
" " 3d "	.....	232	=	7.8 "
" " 4th "	.....	87	=	2.9 "
" " 5th "	.....	48	=	1.6 "
" " 6th "	.....	46	=	1.6 "
" " 7th "	.....	27	=	0.9 "
" " 8th "	.....	20	=	0.7 "
" " 9th "	.....	11	=	0.4 "
" " 10th "	.....	5	=	0.2 "
" " 11th "	.....	6	=	0.2 "
" " 12th "	.....	2	=	0.07 "
Not stated.....	.....	41		

Thus on an average, for a total of 2,959 women, the number of whose pregnancies is given, the number of pregnancies for each woman is 1.85.

FIRST MENSTRUATION.

The age at which menstruation first appeared has varied much, as is seen in the following statement:

In the 27th year in.....	1	In the 17th year in.....	437
" 25th "	1	" 16th "	693
" 24th "	4	" 15th "	422
" 23d "	8	" 14th "	258
" 22d "	20	" 13th "	71
" 21st "	29	" 12th "	18
" 20th "	194	" 11th "	6
" 19th "	173	" 10th "	1
" 18th "	354	" 1st "	1

In the case where menstruation first appeared in the 27th year, the woman, who was married, became pregnant without having menstruated, and the menses commenced after delivery. The same was true of one of the women who menstruated for the first time in the 23d year, and also of one who began in the 19th year.

Another of those menstruating in the 19th year had only menstruated once, when she entered the hospital, a *primipara*, in her 25th year. This was the case with a *primipara* of 27, who menstruated for the first time at the age of 16, and therefore in the course of 11 years only had her turns once.

A woman 40 years old, pregnant for the second time, had had her menses six or seven years before, but never else. She always had herself bled three or four times in every year.

With regard to the one individual who is given as menstruating from the first year, it may be remarked that she was of a little, almost dwarfish form, and that both her mother and grandmother are said to have menstruated at a very early age. She was married to a peasant and sought aid from the hospital in her third pregnancy, after being twice delivered with great difficulty by mutilation of the fœtus. She had a pelvis measuring in the superior opening only 2 in. 10 lines. Premature labor was induced, and she went through her labor unassisted, but died of puerperal fever in the epidemic that prevailed in 1850. A more particular account of this woman is found in Prof. Faye's hospital report for 1850. According to her own statement, which her mother confirmed, she had had every month a reg-

ular excretion of blood from the genitals, from the end of her first year, and had sought the advice of a noted quacksalver for it, but without effect.

Menstruation had never taken place in six women, all primiparæ.

302 women were unable to state the age at which the menses first appeared.

The average age for the first appearance of the menses, in a total of 2,691 women, was 16.375 years.

In the year 1839 one of us (Faye) drew up a statement respecting menstruation at the request of Dr. Raciborski in Paris, who wished to use it in contending for a prize offered by the French Academy. This report, based upon 100 observations made in the town of Skien and vicinity, gives among other details an account of the first appearance of menstruation, which according to these observations falls about the age of 16.5 years on an average. The difference between these two averages is not large, as will be seen, and is easily explained; partly from the fact that the earlier series embraces a smaller number of women, partly perhaps from the circumstance that the observations from Skien were to a large extent derived from a class higher in the social scale, among whom often the sexual life is not so early aroused to activity by exciting ("lubric") society as it is in our lower classes.

As may be learnt from the treatises on menstruation, its commencement is not regulated by the climate, as has been commonly supposed, for even in very warm climates, it by no means commences at the age *conjecturally*

assigned for it.* Although among our small women of the Lapp race, living in the northernmost part of Norway, menstruation appears about the 17th year as a rule and even earlier, as far as the observations of one of us (Faye) during a lengthened stay in Finmarken were able to be carried.

INTERVAL OF MENSTRUATION.

Regularly 4 weeks in 1,984 women,		=	72.9 per cent.
From 3 to 4 " " 147 "		=	5.4 "
About 3 " " 330 "		=	12.1 "
" 2 " " 9 "	}	=	2.4 "
" 2 to 3 " " 16 "			
" 4 to 5 " " 17 "			
" 5 " " 10 "			
" 5 to 6 " " 1 "			
" 6 " " 9 "			
" 12 " " 1 "	}		
" 2 to 3 times yearly, 1 "			
Irregular " 190 "		=	7.0 "
Never appeared " 6 "		=	0.2 "
No statement " 279 "			

From this table it is seen that in about two thirds of the whole number the interval was 4 weeks, and in about one sixth, 34 weeks, which agrees with the statements handed down from the most ancient times regarding the manner in which this function shows itself. It was impossible to answer the problem of the relation which the moon's phases sustained to the appearance and interval of the menses; and so we are unable to

* Compare the statements in Reich's "Geschichte, Natur und Gesundheitslehre des ehelichen, Lebens, Cassel 1864," and Busch's "Das Geschlechtsleben des Weibes, I. Th., Leipzig 1839." From later observations it seems to be proved that many statements based on Vircy's authority are misleading, inasmuch as the early marriages which are enjoined by religion in many Eastern countries do not coincide with actual complete sexual development and menstruation.

state whether a larger number of menstrual periods begin during the first or second half of the lunar month.

DURATION OF MENSTRUAL PERIOD.

Since the details we have received on this point vary from $\frac{1}{2}$ a day to 14 days, it would be unprofitable and needlessly tedious to offer a special table in full. We will therefore only give the percentage for those women whose statements have been tolerably accurate ; amounting to 2,160 in number.

The menses lasted	7 to 8 days in	14.7 per cent.
" " "	5 to 6 " "	3.1 "
" " "	4 to 5 " "	8.4 "
" " "	4 " "	4.5 "
" " "	3 to 4 " "	26.7 "
" " "	3 " "	8.3 "
" " "	2 to 3 " "	16.0 "
" " "	2 " "	5.1 "
" " "	1 to 2 " "	1.9 "
" " "	1 " "	1.0 "
Remainder of the 2,160 women,		10.3

To what extent a larger or smaller number of the women who gave 8 to 14 days as the length of their menstrual act may have menstruated normally, or perhaps suffered from actual metrorrhagia caused by a diseased state of the internal organs of generation, cannot be answered with any certainty, since the investigations, instituted during pregnancy and labor have not been able to furnish any definite result in this direction.

Only 11 women, according to the statements we have obtained, have supposed themselves to have menstruated during pregnancy.

1 woman said she had menstruated	1 time.
2 " " "	3 times regularly.
1 " " "	4 times, with 8 days' interval, in the commencement of pregnancy.
3 " " "	during the whole of pregnancy except the last month.
3 " " "	during the whole of a single pregnancy.
1 " " "	during repeated pregnancies.

It is not improbable that many women have menstruated once during pregnancy, since the examination upon this point may easily be incomplete. By no means should we regard the statements given as wholly reliable, for a slight hæmorrhage may easily occur which does not deserve to be considered as menstruation. Especially may the case of menstruating four times at intervals of eight days be doubtful. The same may even be said of the instances in which the menses occurred during the entire pregnancy; but nevertheless, since experience has shown that in rare cases a regular excretion of blood may occur every month till the last, the possibility of the cases instanced above cannot be denied. From what point in the genital organs the blood originates during pregnancy, is perhaps not certainly proved; but it seems most reasonable to suppose it to be excreted from the vaginal arch; for that the blood should come from the inner surface of the uterus and in its descent detach the decidua in the uterine cavity is less probable, though such an occurrence cannot be definitely denied.

MENSTRUATION AS RELATED TO LACTATION.

It is an old belief that menstruation as a rule does not occur during lactation, and that consequently a new pregnancy will never take place so long as the woman is giving suck. This belief is very general among the common people, and has by degrees acquired the force of a tradition. In this fact is to be found, to a large extent, the explanation of the custom, so common in the country districts, of continuing to give suck during

several years, in which time it is supposed that intercourse may take place without a new pregnancy. Although it may be explained in a physiological point of view, that it is not so easy for two sets of organs, so closely connected with one another as the ovaries and mammæ, to be simultaneously active, as it would be for one to rest during the other's activity, and thus that ovulation and menstruation occur less frequently during the period of lactation; it is nevertheless a fact that exceptions from this rule are far from few. Since variations in the mode of appearance of the menses during pregnancy are so numerous as not to be susceptible of classification to advantage, and since a detailed statement on this head is wanting in the usual reports of lying-in hospitals, we have thought proper to give a numerical account of each case, according to the statements made to us.

The total number of multiparæ is 1,327 out of 3,000, and of this number 125 women had their menses while suckling their children, = 10.6 per cent.

<i>Duration of Lactation.</i>		<i>Menstruation.</i>	<i>Condition.</i>		<i>No. of</i>
		<i>At What Time, etc.</i>		<i>Age.</i>	<i>Child'n</i>
1.	Not stated.	6 weeks after delivery.	Married.	30	3d
2.	"	Appeared during lactation.	"	23	2d
3.	1½ years.	Towards end of lactation.	Unmar'd.	23	2d
4.		2 times during lactation.	Married.	35	6th
5.		Usually appeared during lactation.	"	43	11th
6.	About 1 year.	Towards close.	"	28	2d
19 7.	1½ months.	Last 8 months.	"	27	3d
8.	2½ years.	Several times.	Unmar'd.	27	2d
9.	1½ years.	Last ½ year.	Married.	40	3d
10.	5 months.	Last 4 months.	Unmar'd.	22	2d
11.	2 years.	Last 1½ years.	"	24	2d
12.		During lactation.	Married.	25	4th
13.	9 months.	7 or 8 months.	Unmar'd.	25	3d
14.	2 years.	Last year.	Married.	32	5th
15.	11 months.	Last 9 months.	Unmar'd.	32	2d
16.	2 years.	6 to 7 weeks after labor.	"	30	2d
17.		Often during lactation.	Married.		11th

<i>Duration of Lactation.</i>	<i>Menstruation, At What Time, etc.</i>	<i>Condition.</i>	<i>Age.</i>	<i>No. of Child'n</i>
18. 4 months.	Every other week till the 3d;* ceased when lactation began; returned in 2 months again.	Unmar'd.	34	2d
19. 2 years.	During last year.	Married.	27	2d
20. 1½ years.	Last 4 months.	Unmar'd.	28	2d
21.	Once, while lactation was checked.	"	26	3d
22. ¾ year.	During lactation.	Married.	29	3d
23. 1½ years.	Last 1 year.	Unmar'd.	32	2d
24. 3 months.	During 2 months.	Married.	37	7th
25. 1 year.	Always during lactation.	"	24	3d
26. 1 year.	Last ½ year.	"	24	2d
27.	During lactation.	Unmar'd.	23	2d
28.	During lactation.	Married.	30	4th
29. 9 months.	Last 6 months.	"	25	5th
30. 1½ years.	Towards end.	Unmar'd.	34	2d
31. 1½ years.	Last ½ year.	"	27	2d
32. 1½ years.	Last ½ year, twice.	Married.		3d
33. 2 years.	Appeared 3 mos. after labor.	Unmar'd.	29	2d
34.	During whole of last lactat'n.	Widow.	29	3d
35.	During lactation.	Married.	38	6th
36.	During lactation.	"	38	11th
37. 1½ years.	Once during lactation, (the only time before becoming pregnant again.)	"	38	4th
38.	During whole of lactation.	Widow.	24	3d
39.	During lactation.	Married.	24	2d
40.	From 2 months after labor.	Unmar'd.	24	2d
41. 20 months.	From ¾ year after labor (so in general).	Married.	33	5th
42.	During lactation.	Unmar'd.	24	2d
43.	Towards close.	Widow.	42	7th
44.	Twice during lactation.	"	24	2d
45. 1 year.	From 2 months after labor.	Unmar'd.	25	2d
46. ¾ year.	Almost the whole period.	"	27	2d
47. 2 years.	Last 1 year.	"	30	2d
48. 2½ years.	Last 1½ "	"	29	2d
49. 1 "	Last ½ "	"	24	2d
50. 1½ "	Last 1 "	"	29	2d
51. 2 "	Towards close.	"	25	2d
52.	Several times during lactation.	Married.	34	5th
53. 1 "	From 2 months after labor.	Unmar'd.	26	2d
54.	Towards close.	Married.	40	7th
55.	During lactation.	Unmar'd.	28	2d
56.	Towards close.	Married.	33	3d
57. 1½ "	During lactation.	Unmar'd.	31	2d
58. 2 "	Last 1½ years.	"	34	3d
59.	During entire lactation.	"	27	2d
60. 2 "	Last 1 year.	Married.	29	2d
61† ¾ "	From 14 days after labor.	Unmar'd.	20	2d
61	Towards close.	"	33	2d

* Probably a mistake for "Every other week till the third time.

† So numbered in original. L.

<i>Duration of Lactation.</i>		<i>Menstruation. At What Time, etc.</i>	<i>Condition.</i>	<i>Age</i>	<i>No. of Child's</i>
62	2 years.	From 9 weeks after labor.	Unmar'd.	35	2d.
63		Towards close.	"	21	2d
64	1 "	From 2 months after labor.	"		2d
65	2½ "	Last 1½ years.	"	30	2d
66		Last 3 months.	"	30	4d 3
67	½ "	During lactation.	"	26	2d
68	1 "	From 2 months after labor.	"	28	2d
69		Towards close.	"	29	2p
70		Towards close.	"	26	2d
71		At the end of lactation, once.	"	29	3d
72	Over 1 year.	During lactation.	"	28	2d
73	2 years.	Last 1 year.	Married.	33	4th
74		Towards close.	"	38	2d
75	1½	From 1 month after labor.	Unmar'd.	30	2d
76		Once during lactation.	"	23	3d
77		Towards close of last lacta- tion.	"	38	7th
78	3 months.	Last 2 months.	"	22	2d
79	2 years.	Last 1 year.	"	41	3d
80	1 "	From 1 month after labor.	Married.	19	2d
81	2 "	From 4 to 5 months after labor.	Unmar'd.	33	2d
82	½ "	From 3 months after labor.	"	24	2d
83	1½ a 2 years.	From 3 to 7 or 8 months after labor.	"	29	3d
84	1 year	From 3 months after labor.	"	25	2d
85		Once, at close of lactation.	"		3d
86	1 "	From 2 months after labor.	"	25	2d
87	Over 1½ years.	From 11* months after labor.	"	27	2d
88		Towards close.	Married.	25	3d
89	1½ years.	From 4 months after labor.	Unmar'd.	25	2d
90		Once, towards close.	Married.	35	4th
91	1 "	From 2 months after labor.	Unmar'd.	26	2d
92	1½ "	From 4 to 5 months after labor.	"	23	2d
93	2 "	Last 1½ years.	"	26	2d
94	2½ "	Last 2 years.	"	26	4d
95	14 months to 2. years.	From 6 months after labor.	Unmar'd.	30	2d
96	½ year.	From 3 weeks after labor.	Married.	24	2d
97		During lactation.	"	27	3d
98	1½ years. ½	From 5 months after labor.	Unmar'd.	23	2d
99	13 months.	From 3 weeks after labor.	"	26	2d
100	1 year.	From 1 month after labor.	"	28	3d
101	1½ "	During almost the whole.	"	23	2d
102	3 child. at once. 3 years.	½ year after labor.	"	29	2d
103	½ year.	3 months after labor.	"	24	2d
104	2 "	½ year after labor.	"	33	3d
105	15 months.	8 to 10 months after labor.	"	24	2d
106	2 years.	Towards close.	"	26	2d
107	8 to 10 months.	8 months after labor.	Married.	28	3d
108	More than 2 years.	2 months after labor.	"	28	7th
109	14 months.	2 or 3 times during lact.	Unmar'd.	27	2d

* Original not quite legible; probably 11.

<i>Duration of Lactation.</i>	<i>Menstruation. At What Time, etc.</i>	<i>Condition.</i>	<i>No. of Age. Child'n</i>
110 In 5th pregnancy from $\frac{3}{4}$ to $1\frac{1}{2}$ years.	2 months after labor.	Married.	33 7th
111 $2\frac{1}{2}$ years.	6 weeks after labor.	Unmar'd.	28 2d
112 Over 2 years.	$\frac{3}{4}$ year after labor.	"	37 2d
113 1 year.	1 month. " "	"	2d
114	Towards termination.	Married.	36 4th
115 $1\frac{1}{2}$ years.	Towards " "	Unmar'd.	27 2d
116 11 months.	9 months after labor.	Married.	36 3d
117	During lactation.	"	38 6th
118 1 year.	1 month after labor.	Unmar'd.	25 2d
119 $1\frac{1}{4}$ years.	2 " " "	"	25 2d
120	All the time (only suckled second child.)	Widow.	37 3d
121 $2\frac{1}{2}$ "	$1\frac{1}{2}$ years after labor.	Unmar'd.	28 2d
122	1 month " "	"	27 3d
123 $\frac{1}{2}$ "	1 " " "		28 2d
124 1 "	1 " " "		25 2d
125 1 "	3 weeks " "		2d

The 125 observations given include 40 married women and 85 unmarried.

Sixty-seven women menstruated during lactation after their first pregnancy and labor, and, therefore, when examined had completed their second pregnancy.

27 women were pregnant for the 3d time.

7	"	"	"	4th "
4	"	"	"	5th "
3	"	"	"	6th "
4	"	"	"	7th "
2	"	"	"	11th "

Several of these have stated that they have menstruated also during previous lactations.

The duration of lactation, it will be seen, has varied very widely,—from a few months to $2\frac{1}{2}$ years. 60 women have given their children suck from 1 to 2 years and over.

The ages of the nursing mothers varies between 19 and 43 years.

The youngest, 19 years old, was a married woman,

pregnant for the second time, who had suckled her first child two years and menstruated three months after the child's birth.

The eldest, aged 43, married, and pregnant for the 11th time, stated that after the first few confinements she had generally menstruated during lactation.

Another woman, carrying a child for the 11th time, was 38 years old and married likewise. She also affirmed that she had usually menstruated during lactation.

We learn from this, that even in elderly women who have borne many children, the functions of the breasts and ovaries may in some cases be in activity simultaneously.

A number of women have menstruated only once during lactation, and have become pregnant immediately after.

A married woman, 38 years old, pregnant for the seventh time, made the very remarkable statement that she had not menstruated once since first becoming pregnant. She had borne a child about every second year, and suckled it in the interval. After her sixth labor she menstruated again during lactation.*

LINEA FUSCA.

The deposit of brown pigment occurring in the last months of pregnancy, which shows most plainly on the linea alba from the navel down towards the symphysis pubis, less often above the navel, has been pointed out

*A correct translation; apparently an inconsistency in Prof. Faye's statements.

as a sign of pregnancy. To what degree this pigment-line is constant will be shown by the table :—

The brown line was seen plainly in	1,643	pregnant women.
“ “ “ “ “ indistinctly “	626	“ “
“ “ “ “ “ not at all “	207	“ “
“ “ “ “ not taken note of “	524	“ “
	3,000	

In a total, therefore, of 2,476 women, carefully examined during pregnancy,

The linea fusca existed in 2,269—91.6 per cent.
 “ “ “ was absent in 207—8.4 “ “

Of the 207 who did not exhibit the dark line, 96 were primiparæ. 17 women brought forth children from 1 to 3 months before their time.

As we learn from these observations that the linea fusca may be not seldom wanting, so, on the other hand, it is proved by observed facts that a distinct brown line may be found upon women who never were pregnant. One of us (Faye) has observed a distinct linea fusca upon a girl 12 years old, who had never menstruated, and whose bodily frame still bore the stamp of childhood. Vogt has likewise seen a distinct line upon the corpse of a female, aged 16, with a hymen. In Berlin, Vogt observed a linea fusca upon a girl of 5 years, with a chronic exudation following peritonitis, and from New York we have accounts of presence of the brown line upon a girl of 4½ years.

Whether a linea fusca which has once appeared during pregnancy, disappears entirely in all cases, may be doubtful; and we do not see ourselves at all in a

position to state with any certainty how long after confinement the line will disappear in the majority of cases.

PAPILLARY BODIES.

The peculiarity hypertrophy of follicles that frequently appears during pregnancy in the areola of the mammæ has always been an object of investigation at the Hospital. How constant this supposed sign of pregnancy has been will be seen from the following statement :—

The papillary bodies were found distinct in 2,282 women.				
"	"	"	" indistinct or small "	26 "
"	"	"	" not found at all "	97 "
No statement made concerning - - - -				595
				3,000

Thus, in a total of 2,405 individuals examined, the papillary bodies were present in 96 per cent. and absent in 4 per cent.

In 8 women there was seen only a single enlarged papilla; in 3 only two papillæ. 2 women had no apparent areola ^{but on the areola} upon an enlarged mamma.

Of the 26 with indistinct papillary bodies, 7 were primiparæ. One was delivered in the first half of her pregnancy. 6 of these women had no linea fusca, or only an indistinct one.

Of the 97 without papillary bodies, 59 were primiparæ at about the end of their term of pregnancy. The others were multiparæ and had passed through from 2 to 10 pregnancies. In 17 of the whole number there was no linea fusca, and in 12 it was indistinct. It would seem from this as if in a certain number of indi-

viduals there was a connection between these phenomena.

When we consider that the corpora papillaria were only absent in 4 per cent. of a series of observations embracing nearly 2,500 pregnant women, we are obliged to regard this phenomenon as one of the relatively sure signs of pregnancy in primiparæ; so that it was not without reason that the celebrated William Hunter once in his time, as it is said, diagnosticated pregnancy in a doubtful case where the hymen was present, basing his judgment principally upon the condition of the areola, in estimating which the dark color as well as the presence of papillary bodies must be taken into account.

That these bodies may disappear by degrees after delivery, to reappear during a succeeding pregnancy, is certain enough; but since, on the other hand, they may also be observed in the interval of two pregnancies, their presence in any subsequent to the first one is a less significant symptom.

Finally, in women who have never been pregnant, it happens in exceptional cases that enlarged papillæ are noticed, though not so large as they often are in pregnancy. These are probably the result of increased nervous and vascular activity, owing to irritation from some cause or other.

VITILIGINES.

The marks resembling cicatrices, generally found on the abdomen and, to some extent, on the loins and thighs of pregnant women whose abdominal parietes

have been distended to a certain degree, belong also among the signs that have been considered pretty conclusive evidence of the existence of pregnancy; and in this view it may be interesting to note the presence of this phenomenon. In our exploratory examinations this point was noticed; but, as it was not understood, nor laid down as a rule, that records should be kept regarding it, we find that a large number of observations are wanting. Only since the year 1860 is the phenomena separately recorded; and thus we are in a position to give results for a briefer period of time.

Of the women examined before 1860, vitiliginæ were absent in 3. Regarding one of these the statement is made that the fœtus weighed 6 lb. 12 oz. (=7 lb. 7 1-9 oz. Av.),—not a small child.*

For the years 1860 and 1861, 9 women are reported without mark on abdomen. The weight of the fœtus varied from 4 lb. 10 oz. to 6 lb. 14 oz. (5 lb. 2 1-2 oz.—7 lb. 9 1-2 oz.)

For 1862 and part of 1863 it is found stated that the marks were absent in 22. Of these one was a woman pregnant the third time, 4 the second, and the rest the first time. The fœtal weight was in one, 1 lb. 8 1-2 oz. (1 lb. 11 oz.), the rest from 4 lb. 12 oz. to 7 lb. 11 oz. (5 lb. 3.8 oz.—8 lb. 7.7 oz. Av.)

Thus the vitiliginæ were absent in 31 cases out of a total of 514 women since 1860. Excluding the one case where the fœtus weighed 1 lb. 11 oz. Av., the cases of absence bear the proportion of 5.8 per cent. to the whole number.

Taking the years 1860-61 by themselves, the proportion is 9 in 300=3 per cent., while the years 1862-63 show a proportion of 22 in 213=~~10~~9.86 per cent.

The difference is hardly the result of accident alone, but, doubtless, depends in part upon the fact that the observations in the last years were recorded with greater care.

This result, though based on few observations, is yet sufficient, being a positive result, to show that this sign is *unreliable*. Even in women twice mothers, and, in

*The Danish pound=1.1029 lb. Av. 1 oz.=1.1029 oz.

some instances, three times, vitiligines may be entirely absent, according to these observations.

SOUND OF FŒTAL HEART, IN CONNECTION WITH THE POSITION OF THE FŒTUS.

In order to define the spot where the sound of the fœtal heart transmits itself most distinctly to the ear, the surface of the abdomen has been divided into four regions by means of a perpendicular and a horizontal line which cross at the umbilicus. Making the justifiable assumption that the fœtal sounds are most easily transmitted to the abdominal walls through the back of the fœtus, we should be able to determine where the child lies from the greater intensity of the sound on one side or the other, while the greater intensity below or above the navel should mark a position with head or pelvis downward, respectively. How far the results of our investigations agree with this will be seen in the following comparison :

Of 1,584 women in whom the fœtal pulse was most distinct on the left side, below, the child was born with head presenting :—

In first position (forehead to right side of pelvis) in 89.2 per cent.

In second position (forehead to left side) in - - 8.3 “ “

In other positions - - - - - 2.5 “ “ .

Of these last, 10 were pelvic presentations, 2 transverse, 2 of the face, and 5 pairs of twins.

Of 507 women in whom the fœtal pulse was loudest on the right side below,

The fœtus was born in the first head-position in 47.2 per cent.

“ “ “ “ “ “ second “ “ “ 52.7 “ “

“ “ “ “ “ “ other presentations “ 5.3 “ “

Among the last appeared 7 pelvic presentations, 3 of face, 1 transverse, and 3 pairs of twins.

In 39 women the sound was clearest above, on the left side:—

Fœtus born in first head-position in 76.9 per cent.

“ “ “ second “ “ “ 12.8 “ “

“ “ “ other positions, one

of them being a pel-

vic presentation, 10.3 “ “

In 16 women the sound was heard clearest above, on right side:—

Fœtus born in first head-position in 68.7 per cent.

“ “ “ second “ “ “ 31.3

Besides these, the following cases are noted:—

Pulse heard most clearly close to navel - - in 26 women.

“ “ “ “ “ “ “ below it “ 110 “

“ “ “ “ “ “ “ above it “ 5 “

“ “ “ “ “ “ “ on the left “ 155 “

“ “ “ “ “ “ “ on the right “ 94 “

In all - - 390

In these 390 cases the child was born in the first position of the head in 66.2 per cent. This proportion certainly shows the probable relative frequency of the first position; but, since the fœtal sound in these pregnancies was heard most clearly nearly upon the transverse and longitudinal lines which pass over the navel, no conclusion can be drawn from it with reference to the child's position.

From all the observations in which it was possible to refer the greatest intensity of the sound to one of the four regions, it follows clearly that we are not in a position to determine the position of the child with certainty from this datum. So much is certain, that in

the large plurality of cases where the heart's sounds are heard on the left side, the foetus will lie with the back towards the left, the forehead, therefore, being toward the right side of the pelvis; but, in 8-10 per cent., this conclusion will be erroneous. And, in regard to the series of observations in which the heart's sound is referred to the right side of the abdomen, we see here also that the phenomenon coincides with the second position of the head in the greater number of cases; but, since the foetus has presented in the first position in so large a proportion as 42 per cent., of course no general rule can be established with the sound of the heart as a basis. It must indeed be admitted that, perhaps, the investigations in many cases may lack the rigorous exactness which is demanded in establishing the point where the sound is most clearly heard; and this will very easily happen in all cases where the heart's sound is distinctly heard over a considerable part of the abdomen. Nevertheless, we have had opportunity, during a long series of years, to observe closely, in a great many cases with the same result as here given, so that we cannot doubt its accuracy in the main, though it will be hard to explain how foetuses, whose heart sounds are heard most clearly over the right side, in so many instances are born in the first position.

In at least a part of the cases the explanation may lie in the fact that the foetus, during the time elapsed between making an examination and delivery, has so changed its position that its back has moved from the right to the left side of the abdomen, and the forehead

of course to the right side of the pelvis. Such changes of position were described many years ago in the reports made by the head-physician (Faye); and later Heyerdahl, head-physician in Bergen (in the *Zeitschrift für Geburtskunde*) and many German writers, have contributed evidence in the same direction.

. That we have no right, from the intensity of the heart-sounds above the navel, to infer that the fœtus is probably lying with its pelvis downward, we shall see by the figures given; for in the very great majority of cases the pelvic presentation has coincided with intensity of heart-sounds greatest *below* the navel, and it will be admitted that it is hardly reasonable to suppose the fœtus to have spontaneously changed its position from a head, to a pelvic presentation.

To complete these observations, we will add:—

That the heart-beat was heard on both sides of the navel with about equal force, in six cases. One of the children was born with head in first position, two in the second, and of two pair of twins one was born in the first, the other in the second. The position of one child is not given.

In 12 cases the sound was heard on both sides and below the navel. Of the children, six presented the head in first position, three in the second, three pair were twins; of which three fœtuses were born with head presenting, and three with pelvis.

In two cases the heart-sound extended over the greatest part of the abdomen. Both children were born in the first head-position.

In three twin-pregnancies the heart-sounds were heard

most clearly in two entirely distinct localities, namely, on the left below and on the right above. In one case it is stated that the beats of the hearts differed in frequency.

Two pair of twins were born in a pelvic presentation.

One " " in the second head presentation + ~~pelvic presentation~~.

In 84 cases no sound of the heart was heard after the commencement of labor. The child was born dead in 71 cases; no statement is made regarding eight; one showed debility of body after the falling-off of the cord; in two cases the strong uterine murmur seems to have dampened the sound of the heart, and in two others frequent and strong pains during a brief labor hindered an accurate auscultation.

ART. III.—*Case of Intermittent Orchitis.* Reported by Wm. H. Martin, M. D., of Howell, Michigan.

WAS called May 3d, 1867, to see Mr. B., a farm laborer, æt 48; of sanguine temperament; found him suffering from an attack of quotidian intermittent fever. The disease yielded readily to full doses of quiniæ sulph. and in two or three days the patient was discharged apparently cured.

Heard nothing more of the case until May 11th, when I was again summoned. On visiting my patient, he complained of severe pain in the left testis, and examination showed that the organ was hot, tender, and enormously swollen, presenting the ordinary symptoms

of an acute orchitis. He informed me that while working in his garden in the morning, he had accidentally bruised his testes with the handle of a wheelbarrow, but had experienced no unpleasant symptoms, more than a momentary pain, until about four o'clock in the afternoon when the swelling came on very suddenly, and he immediately sent for me. I directed hot fomentations of an infusion of hops, the part being elevated as much as possible, and left four powders of morphinæ sulph., ($\frac{1}{2}$ grain each,) with directions to take one every half hour until the pain was relieved; also directed a teaspoonful of the following mixture to be given every two hours: R Antim. et pot. tartratis gr. v, Magnesiæ sulph. ʒss, Fl. Ext. Hyosiami ʒij, Aquæ ʒij. On the following morning the swelling had almost entirely disappeared, but little tenderness remained, and the patient expressed himself greatly relieved, but stated that on the preceding night he had suffered the most excruciating pain until nine o'clock, although he had taken all the morphine, and that the disappearance of the swelling was almost as sudden as its access. I assured him that he had experienced the worst of the attack, and directed him to continue the treatment for a while, thinking it would not be necessary to see him again. Imagine my surprise when I was again summoned the same night and informed that Mr. B. was "worse than ever." Business engagements prevented my seeing him for several hours, and when I arrived, the orchitis had again subsided and the patient was bathed in a profuse perspiration.

The real character of the case was now apparent. I

ordered Quiniæ sulph. gr. xx, to be given during the intermission. The result was perfectly satisfactory; the patient had no farther paroxysms and made a speedy recovery.

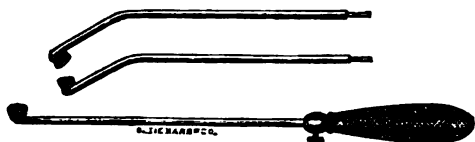
ART. IV.—*A Case of Necrosis of the Upper Third of the Humerus, of Long Standing. Operation with a new Instrument for Removing Debris of Sequestrum through a Small Opening in the Involucrum.* By THOMAS M. HEALEY, M.D., Brooklyn, N.Y.

JAS. PURCELL, æt. 33, was wounded in the upper part of his right arm by a minie-ball, in 1861. General health good; suffers at times with neuralgia in the right arm and hand. Fore-arm is in good condition. Elbow is ankylosed. The arm is much atrophied, and the humerus seems to consist, from elbow to shoulder, of a large uneven involucrum. It shows many cicatrices, and two small sinuses, one at the middle of the arm, and the other at the junction of its upper and middle thirds.

The probe introduced through either sinus, readily travels in the direction of its fellow, and discovers loose dead bone.

June 10th. Assisted by Dr. W. B. Jones, Brooklyn City Hospital House staff, (the patient being ætherized,) I made an incision connecting the sinuses, and found a mass of necrosed scales and debris loosely adhering to the subjacent bone. The medullary canal

of the humerus was completely occluded below this point; but on removing the scaly mass from the upper end of the cavity, the gouge broke through a slight septum, and slipped two inches or more up the hollow of the bone; disclosing a cavity filled with a loosely adhering mass of necrosed scales of bone. This was unexpected, as we had been unable to force the probe in this direction. The terribly profuse hæmorrhage which now occurred, compelled a stoppage of proceedings. The wound was plugged tight with a sponge, dressed with cold water, and the man put to bed. I devised the following instrument to operate upon this cavity, without trephining and morticing away the involucrum, as is usually done.



I took a piece of steel sound wire, (size No. 8) and forged a hoe-shaped cutting head on it, and tempered the head alone of the instrument, leaving the stem or shaft of untempered but stiff steel. Now, by bending this, as shown in the diagram, the cutting head of the instrument can be made to operate on any part of the interior of a cylinder, from a given point on its periphery.

June 20th. Having provided myself with two sizes of the instrument, assisted by Drs. Jones and Kissam, jr., B. C. Hospital House staff, I removed with the utmost ease through the former opening, which had been kept well opened by oiled lint, all the adhering

dead bone. The wound was syringed out and the hæmorrhage controlled by plugging and cold.

This large cavity, reaching nearly to the head of the bone, is kept patent, by a wax plug, and syringed out twice or thrice daily with a disinfecting solution of Permanganate of Potassa.

July 15. The cavity is diminishing rapidly in all directions. The probe can discern here and there an isolated scale of bone, and every now and then one of these comes away as the wound is syringed. The man is at work again.

July 24. A gutta percha plug has been substituted for the wax one. The man is now stronger after two bloody operations in little more than a month than he has been at any time since he was injured. He is relieved of the neuralgia that formerly annoyed him so much. The space of the first incision, nearly three inches, is completely healed; and now there remains but the one opening, which is kept widely patent, by the gutta percha plug; and through which the wound is syringed twice daily.

The scraper is made with a shifting handle, so that several sizes of the same instrument may be used with one handle; and they can be made to fit the large moveable handle, which now accompanies nearly all cases for major operations.

It can be used to remove bone, or to operate on the surface of a bone, for any purpose where it is not desirable to make large free external openings, or where it is impracticable so to do; as the shaft of the instrument can be bent into any conceivable shape.

ART. V.—*Epilepsy in the Female Sex.* (Translated for the *New York Medical Journal* from the German of Meisberger, in the *Nordamerikanische Deutsch-medicinische Zeitschrift*, 1865.)

This chronic nervous disease admits of a wide margin as regards its intensity and modifications; it is characterized by tonic and clonic convulsions and an interruption of sensible activity and consciousness. It is distinguished by three forms, the idiopathic, symptomatic and sympathetic. Romberg adopts a central and centripetal form. Naumann considers it practically important to distinguish three categories, viz., the idiopathic, symptomatic and complicated. The first category has perfectly free and undisturbed intervals; in the second, symptoms appear between the attacks, which point to a continuous pathological condition of the cerebral functions (forgetfulness, sleepiness, headache, vertigo &c.,) In the third form the intervals are not disturbed by cerebral symptoms, but by indices pointing to the troubled state of other organs. The first and third form afford the best, the second the worst prognosis. Among the *symptoms* the aura deserves particular attention. Some observers consider it an index of peripheric epilepsy, while others deny this.

The motory aura is, as a peripheric irritation, remarkable inasmuch as mechanical interference—such as constriction of the extremities, pushing against solid bodies, &c.,—are able to suppress the attack, in which case energy of will or even a “firm faith” may be more decided than “diverted irritation, suppressed direction” &c. It is well known that, in epilepsy, any means may be useful, whenever it exercises a lasting influence on the nervous system; many nostrums have had a good effect which became unsuccessful as soon as their indifferent substances become known. We consider the aura an entirely unimportant symptom and of no significance for therapeutics. The symptoms of the paroxysms, the cry, the falling down, the convul-

sions, the difficult respirations and digestion, the perspiration, the discharge of urine, fæces and sperma need no further explanation. The *progress of the disease* is chronic. Different periods of life, especially in the female sex, influence the origin and removal of this suffering more or less. The conditions of weather and temperature, the seasons, changes of the moon, the climate and many other circumstances exert surely an important, although as yet unknown influence on this disease. Experience also shows that the simultaneous existence of ulcers, of chronic cutaneous eruptions, &c., keeps off the attacks or, at least, limits their haste and violence, which circumstance might be important for therapeutics. The *causes* of epilepsy are minute changes of the brain-substance, partly temporal and functional, partly chronic and organic. It may also be adduced by lesions of the brain by means of foreign bodies of an organic or inorganic nature, by abscesses, contusions, cancer and syphilitic tumors. That, however, a strong organic disturbance of the brain cannot be the direct and necessary cause of epilepsy, is obvious from the fact that pathological anatomy has as yet discovered no distinct lesion in epilepsy; it is likewise contradicted by such cases as terminate in a cure. It is very desirable that pathological anatomy should solve the important question, whether such lesions of the brain are not a consequence rather than a cause of this disease. There is a form—the so-called essential epilepsy—lasting through life and still exhibiting no lesions of the brain in the post mortem examination. There can be no doubt about the hereditary nature of epilepsy; but there are cases of epileptic persons procreating healthy children. The disease arises most rarely in the periods of infancy and riper age, and most frequently in the period of mental and physical development *i. e.* from 10 to 20 years. Among the predisposing causes we must mention the female sex in particular. A great number of cases prove a greater prevalence among the females. The sexual sphere is

certainly a very important casual agent, and hysteria seems to be related to epilepsy as the following may illustrate :

A slender, finely, and well-formed woman of 17 years, having regularly menstruated for four years, complained a week after her marriage of pains in her hypogastrium, to which, however, but little attention was paid. About a fortnight after she fell into terrible hysterical convulsions, lasting with more or less interruptions for five days, and simultaneous with her menses. Previously nothing similar had occurred. After the first attack the patient remained free for six days, when the attacks returned frequently and more or less with the symptoms of epilepsy. She had clonic convulsions, fell down, and lost her consciousness. The circumstance that all these conditions since her marriage owed their original to sexual intercourse, led to the supposition that they were caused by some disturbance of the sexual system, so much more so, because the convulsions took mostly place after coition. The examination revealed, in fact, a falling of the uterus, and a pretty voluminous contraction of the tissues in the left side of the uterus. After examination the patient had another epileptic fit which was soon removed by inhaling chloroform. The uterus was now subjected to treatment, and with its cure the epilepsy disappeared.

It has been established long since that pregnancy causes epilepsy which often lasts during the entire period ; that sexual ripeness, *i. e.*, the appearance of the menses influences this disease favorably or unfavorably, that, furthermore, local ailings of the genital organs produce as great influence as sexual irritations, dissolutions, and abstinence. The different authors enumerate many occasional causes, but they are only such in so far as they affect the brain as psychical impressions (? ?) Mention is also made of feigned epilepsy, but M. does not adduce anything new or remarkable. We will, therefore, pass over to his *scheme for examining epileptic*

patients. They are, whenever feasible, to answer themselves the following questions: What is your mode of life? age? when, how, where, by what cause did the disease begin? More remote premonitory symptoms? Aura? How does the attack manifest itself? Are the convulsions strong or weak? What is the degree of the difficulty of respiration? Is consciousness lost for a longer or a shorter time, or only imperfectly disturbed? How do you feel after the attack? Is there a comatose condition, delirium, mania, stupidity? Are the intervals perfectly free and undisturbed, or is there a perceptible, partial decrease of mental and physical strength? How often do the attacks take place? at a definite time? single or in succession? Have other natural or morbid excretions any influence on the attacks, any connection with them? How long has the disease existed? Was it acquired or hereditary? Did the evil arise from sickness, sorrow, misery? Did some concussion of the brain, some lesion of the head precede it? Exist there any disturbances of this or that organ? (paralytical symptoms, anæmia, plethora, exostosis.) Are there any sexual irritations, or onanism? Did you pass through other diseases, and how did epileptic fits operate during them? Has the ailment been removed by former treatment? have the attacks discontinued or diminished in frequency or intensity? The answer to these questions will have considerable bearing on therapeutics, which M. treats of but little. He rejects all the so-called specifics, together with belladonna and atropine, but recommends valerianate of zinc and experiments with inhalations of chloroform. He also gives great weight to proper diet, mental encouragement, and corresponding bodily motions.

Reviews and Bibliographical Notices.

ART. I.—*Transactions of the Obstetrical Society of London*. Vol. viii. For the year 1866. London: 1867. 8vo., pp. 403.

THIS volume, like the preceding ones, contains a digest of the observations and opinions of many of the most experienced obstetricians and gynecologists of Great Britain. Lack of space will let us only briefly mention some of the most important of its contents.

Dr. H. E. Eastlake, in *Brief Notes on some Uterine Therapeutics*, speaks highly of the use of the "Spiritus Pyroxylicus Rectificatus," in cases of obstinate vomiting in pregnancy; he gives it in five minim doses, with a drachm of the compound tincture of cardamons, in water, every four hours. Many years ago we experimented largely with naphtha in the treatment of consumption; we were satisfied of its uselessness as a remedial agent in the disorder, but then learnt its value in controlling the troublesome nausea and vomiting which may happen in any stage of phthisis, and have since constantly and successfully used it in allaying these symptoms when intercurrent in that and other affections. If we remember rightly, the experience of Dr. Christison, of Edinburgh, agrees with our own.

Dr. Eastlake also calls attention to "Iodoform" as a sedative in cancer, and particularly cancer of the uterus. A few years since an elaborate monograph on this compound—a teriodide of formyle, or more strictly a di-iodated iodide of methyle—was written by Dr. Giovanni Righini, and soon afterwards translated into French. Of its sedative, or rather local anæsthetic properties, there does not seem to be any doubt; but the trials made with it since Dr. Eastlake brought it to the notice of the profession, by Dr. Greenhalgh, Mr. Nunn, and others, do not seem to sustain the anticipations of its early advocates. It is given in-

ternally in two or three grain doses, in the form of a pill, made up with crumbs of bread. It is also applied to the diseased part, and when thus used, its disinfecting property is very decided.

Dr. Meadows reports two cases of amputation of the cervix uteri, in Huguier's *allongement hypertrophique du col de l'uterus*, in which there is always more or less procidentia. In the first case, æt. 23, of three years standing, the womb measured four inches and three-quarters in length, the cervix being two inches and a half. The *allongement* was limited to the vaginal portion of the neck. An inch and a half was removed. In the second case, æt. 28, and married, procidentia came on "after the birth of the second child, and for several years part of the uterus had been outside the vulva." The uterus measured five and a half inches, and was thickened and indurated. Two inches of the cervix were removed. "The uterine wall at the seat of amputation measured fully an inch in thickness." Both cases got well quickly and without accident. The *ecraseur* was used, and in the second operation two wire ropes and three chains were broken. In this affection the neck should be amputated by means of the galvano-cautery, which has every advantage over the *ecraseur*.

Paul, in the "Archives Générales de Médecine," first showed the frequency of abortions and of menorrhagia in women who are exposed to lead poisoning.

Mr. Benson Baker gives several cases confirmatory of Paul's views, namely, that "lead poison in its action on the fœtus very closely resembles syphilis, causing its death and subsequent expulsion."

An extraordinary case is related by Mr. R. W. Watkins where there was "recovery from tubular gestation, and probably rupture, and also from the comparatively slight local and constitutional effects of the retention of a fœtus in the abdomen for forty-three years."

Mr. Baker Brown publishes a paper "*On the use of the Actual Cautery in Ovariectomy, illustrated by eleven cases.*" Although in three of the eleven cases it was necessary to use silver or twine ligatures in addition to the cautery, still Mr. Brown believes that in ordinary cases the division of the pedicle or adhesions will be best done by the actual cautery at red heat, the pedicle being bruised by burning it off slowly, and care being taken not to disturb the stump afterwards by any rubbing; it should be handled very gently, and let to drop into position by its own weight. It is important that the clamp used should be of a certain make. In twenty-three cases of completed ovariectomy, not selected, in which the cautery was applied, there were two deaths; and this great success Mr. Brown attributes to the advantages of the actual cautery, and he believes that if he were to select his cases, "ovariectomy would rank as high in (favorable) statistical results as any capital operation." Where the omentum is very fat it is waste of time to use the cautery, for it will not sear and pucker up, but the fat will melt and may blaze up.

Dr. C. H. F. Routh gives a case of *Fibro-cystic disease of Uterus mistaken for Ovarian disease; attempted extirpation; failure: death by rupture of a vessel within the cyst.* The uterus was moveable and of natural length. The whole cavity of the pelvis was filled by an indurated mass with more movement on the right side than on the left. The uterus was free, but pushed behind and to the right side. The diagnosis was multilocular ovarian disease, concurred in by Sir Wm. Fergusson, Drs. Savage, Greenhalgh, &c., though Dr. Routh says that from the almost solid, hard bridge between the two larger sacs, the idea of fibro-cystic uterine disease occurred to him and Dr. Rogers.

An instructive paper, with an illustrative case, on *Mechanical Dysmenorrhœa*, is furnished by Dr. Robert Greenhalgh, who states that he had then "operated upon nearly 300 cases of mechanical dysmenorrhœa and

sterility, with but few and slight casualties. One had rather profuse hæmorrhage, for which plugging was had recourse to; in about five others pelvic cellulitis ensued, and in one [that given] peritonitis was set up which terminated fatally." In this case, æt 28, married nine years and sterile, there was so much pain at each period as to seriously affect the general health. The smallest sound could not be introduced through the internal os. The neck was divided with Dr. Greenhalgh's metrotome, and a dilating stem then introduced. For two days the patient went on well, when paroxysmal pain, chiefly about the epigastrium, was complained of, followed by fever, and death happened on the ninth day. It was found at the autopsy, that the internal os uteri had not been cut through, and that it was very much constricted. There were recent peritonitis, and the evidences of chronic (tubercular) peritonitis; the womb, much anteverted, was bound down by old adhesions; the mesenteric glands were tuberculous. An instructive lesson is given in this case, of the necessity of ascertaining the actual condition of a patient before attempting such an operation, which was not done here.

Dr. G. concludes his paper with the following bit of sound advice, which we think cannot be too strongly enforced. "I must allude to the great danger of the sponge tent after division of the cervix uteri. I know of one fatal case resulting from this practice, and I am confident that many more will be added to the list if this course is pursued."

A paper of great value is Dr. Thomas Radford's, of Manchester, report of 19 cases of *Laceration of the Uterus*. The greatest number happened at the more advanced ages, as 39 and 40. The tables show "laceration of the uterus occurred most frequently in women pregnant for the eighth time, and that to those pregnant for the first time the accident happened quite as often as it did in any of the other cases (17) which

are registered." The duration of the labor, from its beginning to the time of the laceration, is given in 17 cases. The greatest number of the accident took place when the labor had lasted ten and thirty hours. It would appear, from the data given, that "laceration of the uterus happens more frequently when slight contraction of the brim of the pelvis only exists, than when there is great distortion of the entire pelvis." "The cervix is the part of the uterus most frequently lacerated, and sometimes the body of the organ is implicated as well, and in both instances the injury is generally found on the left side." In 16 cases the muscular tissue and the peritoneum were both torn. In 2 cases the peritoneal coat was uninjured, whilst the muscular tissue was extensively torn. In both of these cases there was great effusion of blood under the peritoneum. Softening of the womb tissue existed in several of the cases. Of the 19 cases three got well, or nearly 16 to 17 per cent. In the discussion on the paper, Dr. Wm. Playfair remarked, that "the usual practice, when the child had escaped into the peritoneal cavity, of attempting to draw it through the rupture, was bad, and tended to increase the laceration, and to risk the injury of other organs. A much better method of treatment would be that of gastrotomy, as practised in America. He had known twelve cases where this operation had been performed, and some of them had done well. In one case the operation had been done twice."

In Dr. E. J. Tilt's paper *On the extreme Surgical tendencies of Uterine Practitioners, and on the Division of the Cervix Uteri*, there is much that is sensible and timely. Dr. Tilt, known in this country by his work on "Uterine Therapeutics," protests strongly against the tendency of the work of Dr. Marion Sims, and the practice and teachings of others, as "conveying the notion that medicines are of little or no avail in the treatment of most of the diseases of women, and that

the knife is the omnipotent means of curing them." In the remarks which followed the reading of the communication, it is well observed by Dr. Routh, that "the discussion proved how little the profession was agreed as to either the anatomy or pathology of stricture of the uterine canal. As to the seat of stricture, it was strange to find eminent men fixing stricture almost invariably at the external os; whilst others, quite as eminent, place it at the internal os." The President of the Society, Dr. Barnes, "believed that the internal os is very rarely the seat of stricture; the os externum is the site of trouble. He had seen retro-uterine hæmatocele caused by it, and had known examples of young girls dying in consequence of it." Of course surgical treatment, by division of the os was the only means of relief, and in his hands the operation had always been safe.

A Contribution to the Pathology of Puerperal Eclampsia, by Dr. J. Braxton Hicks, is of much practical importance. Most recent writers on the subject of childbed convulsions have assumed that the proof of uræmia is in the presence of albuminous urine. Many of the continental writers seem to have assumed in such cases preëxistent Bright's disease. Two of the prominent symptoms of the latter affection—albumen in the urine and uræmia—are no doubt often met with in childbed convulsions; but Dr. Hick's cases go to prove that the latter affection may happen without any organic kidney disease.

"Now if these cases can be shown to occur, and if albumen in the urine be an indication of uræmia, and if those experiments above quoted be right—viz., that twenty-four hours at least must elapse before symptoms of uræmic poisoning can occur—then it follows that the convulsions cannot be owing to uræmia, at least the result of kidney disease." (p. 328.)

Dr. Hicks thinks that the state of the case as it a present stands is, that the convulsions themselves are the

cause of the nephritis; that the same cause produces the convulsions and the nephritis—some poison in the blood, irritating at the same time the cerebro-spinal centres and other organs—and that to the highly congested state of the nervous system brought on by the spasm of the glottis in the convulsion, is due the kidney complication. The importance of examining the urine, early and frequently; in every case of labor is properly insisted on; and four cases of convulsions are given, in which at the onset of the attack there was no albuminous urine, and subsequently it was in large amount. He suggests to obstetrical practitioners the investigation of this subject to clear up the question of the nature of the connection between albuminuria and child-bed convulsions. In *The Lancet*, 1865, Dr. Barnes published a case of puerperal eclampsia in which the serum of the blood drawn contained urea and crystals of uric acid.

The concluding paper is upon *Excision of the Clitoris as a cure for Hysteria, &c.*, by Dr. Thomas Hawkes Tanner. The title hardly gives the true scope of the article, which is rather an inquiry into the value of clitoridectomy as a cure of masturbation in the female, and the relations between this vice and hysteria, epilepsy, and insanity. We are not disposed to enter into any examination of the arguments for or against this principle or practice, as we believe that they have received the just reprobation of nearly the whole profession, and that for awhile at least the matter is at rest. In the five cases given by Dr. Tanner the operation signally failed to relieve the distressing state of the unfortunate patients.

ART. II.—*Essentials of the Principles and Practice of Medicine; A Handy-Book for Students and Practitioners.*

By Henry Hartshorne, M. D. Philadelphia: Henry C. Lea, 1867. Small 8vo, pp. 417.

WE have had occasion previously in the columns of the Journal to express our decided disapprobation of the whole class of *vade mecums*, *handy-books* and all such attempted short-cuts to the acquisition of knowledge. Nor does a careful examination of Dr. Hartshorne's little book in any way incline us to modify our views. "There is no royal road to learning," and the student who attempts to abbreviate his journey thitherward will generally find in the end, that what he has saved in time or distance, he has more than lost in completeness of knowledge, which is essential to success either as a practitioner or teacher.

Books of this sort, as a rule, are *abused* not *used*, and they invariably do more harm than good. The fact, too, that they are always written by accomplished scholars or men of large experience and extended study and research, is to our mind a substantiation of the estimate we have always put upon them, for the kind and degree of knowledge that they convey is not sufficient to enable one to become a teacher of others.

Suppose for a moment that Dr. H.'s intellectual pabulum and mental discipline had been derived exclusively from such works as this which he now with the noblest integrity of purpose, we admit, puts out for the instruction of others, could he or would he ever have arrived at the positions he so honorably fills, or achieved his so enviable reputation? Or to put it still more pointedly, would he have ever been equal to the preparation of a "handy-book?" We think not.

Dr. Hartshorne prefaces his book with a brief notice of the various systems of medicine that have prevailed since medicine was first written upon. Thus he begins with the *Naturalism* of Hippocrates, and ends with Vir-

chow's *Cellular Pathology*. The author is necessarily brief, for his purpose was not to go into any historical discussion of the philosophy of medicine, or even to write a condensed history of medicine, but simply to bring at a single glance, as it were, before the reader a view of the principal phases which medical opinion has passed through in reaching its present status.

The body of the book is then divided into two parts—the first, “Principles of Medicine;” 2nd, and “Special Pathology and Practice;” and finally we have the inevitable list of formulæ which greets us so familiarly in all books of this class.

Of course, with our views of the propriety of such publications, we are not disposed to make any review of Dr. Hartshorne's book. But we must, with all candor and courtesy, concede to the author that he has done his work vastly better than those who have preceded him in this line. We only regret that he has not devoted his great acquirements to nobler purposes.

ART. III.—*The Physiology of Man, designed to represent the Existing State of Physiological Science as applied to the Human Body*. By Austin Flint, jr., M.D., Professor of Philosophy and Microscopy in the Bellevue Hospital Medical College of New York, &c., &c. Alimentation; Digestion; Absorption; Lymph and Chyle. New York, D. Appleton and Company, 1867, 8vo, pp. 556.

IN furtherance of his extensive plan with reference to a complete treatise on the physiology of man, Prof. Flint, in the work before us, furnishes the second volume of the series. The marked favor which the first part, issued a little over a year ago, received, will, we are very sure, be extended to the present, for it is characterized by the same thoroughness and soundness of views, the same exhaustive study and research, and the

same clearness of expression to which we then called the attention of our readers.

To write a good text book on physiology probably requires as extensive and as varied accomplishments as are demanded for any other literary or scientific labor connected with medicine. There are a great many works on the subject which are intended for physicians and medical students, which, in our opinion, fall very far short of mediocrity, and very few which come up to the higher standard of completeness, correctness, and at the same time conciseness. It does not always follow that good physiologists write good text-books on their science. Knowledge alone will not suffice; and when, as sometimes happens, treatises are issued, the writers of which have merely superficial ideas of physiological phenomena and consequently no comprehensive grasp of the science as a whole, the failure is not only lamentable but is almost criminal.

The student or physician, however, who takes up Prof. Flint's treatise will meet with none of the embarrassing difficulties he is liable to encounter with many other physiological text-books. There are no unfounded statements, no half-stated facts; and there are ample citations of authorities without which no work pretending to a scientific status can be regarded as complete. It is often very convenient for authors to omit references, for there is then a hope that their own and borrowed matter may be so thoroughly mingled as to give them credit for ideas of which they never even dreamt.

In the present volume Prof. Flint discusses the subjects of Alimentation, Digestion, Absorption, Lymph and Chyle. Hunger, thirst and inanition are treated in a remarkably able manner, and with many illustrations drawn from the author's experience and from the best authorities on the points in question. In a dog, from which Dr. Flint removed the spleen, a very remarkable increase in the appetite was observed. The author, however, does not ascribe this effect to any particular connection between the spleen and the desire for food,

for, as he observes, a similar result has followed extirpation of one kidney.

The chapters on Alimentation and the several processes connected with digestion are exceedingly full, and abound with interesting statements which even non-professional persons might read with advantage. It is easy to see that Prof. Flint has not only an intimate knowledge of the nutritive value of the various substances used by man as food, but that he has also a keen sense of their gustative properties. Whilst we agree with most of his opinions relative to the flavor of many articles of high gastronomic character, we certainly cannot give an assent to the view that the taste of chicory "is not unlike that of coffee itself and is not disagreeable." The real lover of pure good coffee could never be brought to admit so heterodox a doctrine.

Under the head of the Saliva we find no reference to the very full and able investigations of Wright (*On the Physiology and Pathology of the Saliva*, Lancet, 1842) who studied this secretion with great care, and was among the first to confirm the observations of Tiedemann and Gmelin relative to the presence of a sulpho-cyanide. Late researches would appear to indicate that the sulphocyanogen of the saliva is not in combination with potassium but with sodium.

Prof. Flint holds the view that the acidity of the gastric juice is essentially due to lactic acid. The differences of opinion relative to this point, which formerly existed, are, we presume, pretty generally reconciled, and lactic acid admitted to be the acidifying principle of this secretion.

As is very proper, by far the greater portion of the book is taken up with digestion, and then the author proceeds to the consideration of absorption and the properties of lymph and chyle. The chapters embraced under these heads are very ample, and the subjects discussed are brought fully up to the present time. Indeed there is no part of Prof. Flint's treatise which exhibits thorough acquaintance with physiological sci-

ence in a more satisfactory manner than this, and the style is so perspicuous (as it is throughout the whole work), that no one with ordinary intelligence can fail in its comprehension.

We regret that the scope and character of this journal forbids a lengthened review of any book, for it would have been a great satisfaction to have given a more complete analysis of Dr. Flint's admirable volume. Before the issue of the first part we entertained the opinion in common with others that there was no room for another text-book on physiology, and that a physician of his learning and acquirements could more advantageously employ his time in experimental research than in writing a systematic treatise. Dr. Flint has shown us that we were mistaken in this view. The two volumes which he has produced convince us of his eminent fitness to perform the labor he has undertaken, and that so far from unfitting him for more extensive original investigations, they afford the best possible discipline for that line of study. No one but a physiologist can properly estimate the toil of mind and body necessary to produce two such volumes as Prof. Flint has given us, and no one can possibly go through with such a labor without having his mind enlarged and his scope of the science extended. We accept the two volumes already issued as evidence of what we may expect in the remaining parts of the series. We regard them as the very best treatises on human physiology which the English or any other language affords, and we recommend them with thorough confidence to students, practitioners and laymen as models of literary and scientific ability.

ART. IV.—*A Treatise on Human Physiology, designed for the use of Students and Practitioners of Medicine.* By John C. Dalton, M. D., Professor of Physiology and Microscopic Anatomy in the College of Physicians and Surgeons, &c., &c. Fourth edition. Revised and enlarged. Philadelphia: Henry C. Lea. 1867, 8vo., pp. 695.

A BOOK that in eight years has passed through four large editions calls for little attention on the part of the reviewer. Its very success is an acknowledgment of its merits, and especially is this true when, as in the present instance, that success is achieved in that branch of medical science which demands the most thorough study and elaborate investigation of any of the numerous divisions of so extended a study. The progress made in Physiology during the past few years, consists, as Dr. Dalton remarks, not so much in any very brilliant and striking discoveries, as in the great activity of investigation in many different directions—which have completed a knowledge which was in some degree previously imperfect—and in some instances impressed a new character on that knowledge. In the cognate collateral sciences particularly, there has been a marked improvement in the discoveries and inventions that facilitate investigations and experiment in the natural sciences, and all these have in a manner proved servicable in physiological inquiries. And it has been the authors intention in preparing this edition of his work, to incorporate all these improvements in the body of the text in such a way as to bring his work fairly abreast with the advanced state of knowledge and at the same time not essentially to alter the general scope and character of the work. Special acknowledgement is made of the studies of J. Lockhart Clarke Esq., on the Grey Substance of the Spinal Cord, and of Dr. John Dean in the Medulla Oblongata and Trapezium.

The work does not purport to be a complete treatise or an encyclopedia of physiology; but as it stands we

esteem it the very best of the physiological text books for the student and the most concise reference and guide book for the practitioner.

ART. V. *Idiocy and its Treatment by the Physiological Method.* By EDWARD SEGUIN, M.D. New York: William Wood & Co. 1866. 8vo., pp. 457.

DR. Seguin has long been known as an earnest and able practical worker in solving the problem whether "idiots can be educated, treated, improved, cured?" Twenty years ago he published in Paris several works upon the subject, and he now enters the field in his adopted country as an advocate of the physiological method of training idiots. No one was better fitted for the task, by study, thought, and opportunities, and this volume, the result of his labors and investigations, shows its author to be an acute observer, a close reasoner, and a practical philanthropist. It will no doubt be largely read, and will do good service in an interesting cause. The method "consists in the adaptation of the principles of physiology, through physiological means and instruments, to the development of the dynamic, perceptive, reflective and spontaneous functions of youth" (p. 81.); and the chief object of the writer is to illustrate and enforce it, though the necessity of coöperative moral treatment or discipline is properly insisted on. Part III. is devoted to an account of the various establishments for the education of idiots, their arrangement, police, &c. In the appendix some fifty odd illustrative cases are given.

Reports on the Progress of Medicine.

THEORY AND PRACTICE OF MEDICINE.

ART. I.—*A Case of Phthisis accompanied by Development of Fungi in the Kidneys. (Beale's Archives of Medicine.)*

THIS case occurred at King's College Hospital, in the practice of Dr. Garrod, when his patients were temporarily under the care of Dr. John Harley. The singular appearances disclosed, on *post-mortem* examination of the kidneys, render it very interesting.

“Jane F., æt. forty-five, a widow, following the occupation of a laundress, was admitted into King's College Hospital on February 12, 1864, in an extremely prostrate condition. With the exception of an attack of small-pox, she had escaped severe illness till about thirteen months ago, when she began to suffer from some symptoms of diabetes, the daily quantity of urine being large, her appetite ravenous, thirst excessive, and legs always more or less œdematous. There is, however, no evidence as to the state of the urine at that time. Since a slight attack of hæmoptysis about Christmas 1862, she had rapidly lost flesh, and a cough, which appeared about the same time, had become very troublesome. There was a slight hereditary taint of phthisis from the father's side.

On admission her face was much flushed, and she breathed hurriedly, the respirations being forty or more in the minute. She was extremely weak, and the emaciation, though masked in the legs by slight œdematous swelling, was elsewhere very conspicuous. The opaque greenish expectoration she was constantly coughing up was rather viscid, and was got rid of with some difficulty. On percussion the whole front of the chest resounded less strongly than natural, and a patch of decided dullness existed below the left clavicle, where loud gurgling crepitation and breathing of a somewhat cavernous character were audible; gurgling was also very distinct

under the right clavicle, whilst elsewhere was heard medium crepitation, varying slightly in character from point to point over the surface of the chest, and becoming daily coarser in quality. There was occasional nausea and flatulence, the appetite was indifferent, the tongue slightly furred, sleep disturbed, pulse 100. Trommer's test, applied to the urine on the third and fourth day after her admission, gave no evidence of the presence of sugar. No microscopical examination of urine was made, and the mouth was not examined.

She gradually became exhausted, and died on February 19th, having been seven days in the hospital.

The *post-mortem* examination was made twenty-six hours after death, the weather being then extremely cold. The lungs, especially the right, were very adherent, and both were extensively diseased. Each, in its upper two-thirds, was studded with softening tubercles, many of them broken down into cavities of variable size, largest in the apex of the left lung. Towards the basis of the lungs the tubercles became more and more scattered, some of them enclosing microscopic cavities, while the extreme bases of the lungs were almost perfectly sound, though gorged with blood and serum.

The pelvis of the left kidney was very nearly filled with a yellowish white pultaceous substance, adherent to the apices of many of the pyramids. On detaching this pulpy mass, a ragged and somewhat softened surface of a yellowish white color was left. The substance of the pyramid for a varying depth, averaging $\frac{1}{4}$ th of an inch, was of the same yellowish white color, and contrasted strongly with the dark crimson hue of the congested medullary tissue around, the line of demarcation between the two being quite abrupt. The diseased portions were of firm consistence except at the surface, and on the whole much resembled tubercular deposits. Two or three pyramids of the right kidney were affected similarly to those of the left, but to a very much slighter extent. The rest of each kidney appeared

healthy. The gall-bladder contained twenty-five small faceted gall-stones.

Microscopical examination of the pulpy matter proved it to consist of the sporules and mycelium of a microscopic fungus, apparently a species of oïdium, possessing the following characters :—

1. Round or oval vesicles, single or grouped, containing one or more globules (probably oil globules or minute sporules), and sometimes granular matter.

2. Elongated vesicles, united at their ends so as to form continuous cylindrical tubes, branching dichotomously, sometimes terminated by strings or groups of round or oval cells, lateral development of such cells being also not uncommon. The tubes contained oil globules and granular material; here and there the contents had escaped, and an empty tube was seen.

The white portions of the medullary cones were penetrated by the fungi for a varying depth, generally $\frac{1}{16}$ th to $\frac{1}{8}$ th of an inch.

If these fungi were dependent on fermentation, a supposition which the absence of sugar from the urine three days before death, and the absence of any history of a saccharine state of the urine render very unlikely, comparison of the somewhat large quantity of fungi formed with the very low temperature of the atmosphere during the short time intervening between death and the *post-mortem* examination, seems to show that it must have commenced before death. The existence of the germs of the fungi in the blood, and their subsequent deposition and growth in the kidneys, is strongly opposed by the absence of similar deposits in other parts of the body where their presence might reasonably have been expected (*e. g.*, the lungs). The most likely supposition seems to be that they had crept up the bladder and ureters to the kidneys from aphthous patches, which may have existed about the orifice of the urethra, or from some parasitic disease of the skin of the parts adjoining, their growth and extension being favored by the low state of the patient's vitality shortly before

death. As, however, there is no record of the presence of aphthæ about the vagina or elsewhere, or of any parasitic disease of the skin, the true source of the growth observed must remain mere matter of conjecture.

ART. 2—*Does Belladonna produce a Rose-Red Rash?*

Dr. HENRY W. FULLER, of St. George's Hospital, thus writes to the *Lancet*. His communication is suggested by a paper "On Skin Diseases," from Mr. Tilbury Fox, in which he enunciates, as a fact, that "belladonna produces a rash of rosy hue."

"In a series of experiments which I instituted some years since at St. George's Hospital, the details of which will be found in a paper on the Action of Belladonna, published in Vol. xlii. of the "Medico-Chirurgical Transactions," the extract of belladonna was given for a period of some months, in doses varying from a quarter of a grain up to seventy grains daily; the patients were examined four or five times daily, and the occurrence of any rash or eruption was carefully looked for. But in none of these cases, nor in any of the patients to whom I have since administered the drug in doses varying from one-twelfth of a grain to half a grain daily, have I ever witnessed the occurrence of erythema or of a rose-red rash, with the one exception above referred to. In that instance the smallest quantity of onion, spinach, and sundry other matters which were imperfectly digested, gave rise almost invariably to "spasm" in the bowels and to a roseolous condition of the skin; and I ascertained by experiment—by the subsequent administration of belladonna on several occasions, while the patient was being strictly dieted—that the drug had no part in the production of the rash. Inquiries which I have made amongst members of our profession who are largely engaged in practice, and who at the same

time are close observers, have convinced me that my experience is not exceptional, and that when a rose-red rash is observed, as it *very rarely is*, during the administration of belladonna, it is referable, not to the action of the drug, but to the operation of causes which would have produced the rash even if belladonna had not been administered. I know of no statement which admits more easily of refutation by direct experiment than that belladonna produces a rose-red rash; and inasmuch as there is none which, being wholly groundless, has obtained more general currency and has exercised a wider influence on the treatment of disease, it is very desirable that the truth should be known.

Art. 3.—Cholera.

In the *Dublin Quarterly* for May, 1867, Drs. Heyden and Cruise present an elaborate and very valuable report on this subject, based upon the details of 197 cases that occurred in the Mater Misericordiæ Hospital of Dublin, in the summer and fall of 1866. The paper is of interest, but too lengthy to transfer to our pages. We therefore merely give the conclusions to which they have arrived by their investigations.

1. The Diarrhœa so prevalent amongst the inhabitants of localities actually suffering from cholera, is a premonition, and the earliest manifestation of cholera.

2. Cholera is a disease strictly preventible by sanitary and hygienic measures, and, in nearly all cases, curable in the stages preceding actual collapse.

3. The treatment which we have found most successful in the stage of choleric diarrhœa is sulphuric acid and opium; with sinapisms, external heat, and creasote water.

4. In collapse we have had more success with calomel given in large doses, than with any other medicinal agent. In several cases, besides those in which recovery

took place, reaction set in under the calomel treatment, but death occurred in the consecutive fever.

5. We believe cholera to be contagious, but in a much less degree than the principal endemic contagious diseases of this country, viz., typhus, scarlatina, measles, and small-pox.

6. As regards individuals exposed to the contagion of cholera, a state of good health, with sanitary and dietetic precautions, afford a strong assurance of immunity from attack.

7. *Immediate* attention should be given to derangement of stomach, or laxity of bowels, during a cholera epidemic; and to insure this amongst the poor, house-to-house visitation seems indispensable.

ART. 4.—*Treatment of Invagination of the Intestines, by Insufflation.*

IN BEALE'S Archives of Medicine, No. XVI., Vol. IV. DR. W. S. PLAYFAIR reports two cases treated by this method, at King's College Hospital. The first case was an infant four months old, perfectly well up to the 10th of March, when he was seized suddenly with severe vomiting. Strong purgatives administered by the mother produced no effect. The two following days he was very ill, vomited incessantly, and passed small quantities of blood, *per rectum*. On the 13th he was brought to the hospital. The symptoms were, anxious expression of countenance, constant vomiting, distended and tender abdomen. There was no hernia; but in the course of the descending and transverse colon, a firm elongated tumor, hard and sensitive. Opiates were freely administered. The next day there was no relief, and the treatment by insufflation was attempted; the injection of air being continued for some time. This was followed by some relief; the vomiting ceased, but the bowels were not moved, and pure blood was still passed at intervals. The following day insuf-

flation was again resorted to, with no better results, and the patient died the same day.

On *post-mortem* examination the small intestines were found to be largely distended with air, and the vessels much injected. No peritonitis had existed. At the ileo-cæcal valve invagination of the ileum had taken place, and the whole of the large intestine was filled with ileum as far as the commencement of the rectum, which was empty and collapsed.

“*Remarks.*—This case is chiefly remarkable from the great extent of the invagination, which involved the whole of the ascending and transverse colon, as well as part of the descending. It is quite clear that under such circumstances no possible treatment could have been of any service, and it is evident that insufflation, to however great an extent it might have been practiced, could have had no effect in relieving the obstruction. Nor need this failure be considered as in any way militating against the employment of this remedy, which has frequently been followed by the best results. For invagination to such an extent must be of exceeding rarity, and no other plan of treatment seems to be so well adapted for unfolding any obstruction that may exist; and as the invagination in children almost invariably occupies the large intestine, it would seem to be specially applicable to them. In this case the diagnosis was particularly clear, the seat of obstruction was apparently pointed out by the tumor perceptible on palpation, and, as a forlorn hope, after the failure of the means employed, gastrotomy was contemplated. This desperate expedient has been recommended in hopeless cases, but I do not know of any instance in which it has been practiced. Probably no case, as far as appearances go, could have been better adapted for it than this, yet it is clear that it would have been worse than useless, since it would have been scarcely possible to unfold so large an invagination with the slightest prospect of success.”

The second case, a girl of two years of age. The first attack lasted five days with no improvement in the symptoms. Insufflation was then resorted to with decided relief, and on the following day the bowels were freely moved, and the child continued fairly well for thirteen days when vomiting, said to be stercoraceous, returned and the movements of the bowels ceased. Insufflation repeated, after which bowels moved twice, and during the next three days, they moved three times, but the child was very ill, and died at the end of the third day. *Post mortem* examination. The abdomen was immensely distended with flatus, and decomposition was advanced. On opening the abdomen, there was evidence of tolerably extensive peritonitis glueing together the intestines. On tracing down the small intestines, a point was reached, near the lower end of the ileum, where the distension ceased, and the remainder of the intestines were collapsed and empty. There were, however, no traces of invagination. The substance of the bowels, and the mucous membrane, were softened and showed marks of inflammatory action.

“*Remarks.*—This case is interesting in many respects, and shows very well the effects of insufflation. The symptoms of invagination were well marked; the only prominent symptom that was absent being the escape of pure blood per rectum. It may be remarked, however, that this is not invariably present when the invagination occupies the small intestines, as it seems to have done in this instance; and, according to Rilliet and Barthez, it is not so valuable as a diagnostic symptom when the child has passed the earliest period of infancy. Insufflation was practiced on two separate occasions, and each time the symptoms of obstruction disappeared, and the bowels were freely opened. Unfortunately, however, as not unfrequently happens, the original attacks gave rise to considerable intestinal derangement, eventually followed by an attack of peritonitis, which proved fatal. Indeed, before the second opera-

tion it is said that these vomited matters were distinctly stercoraceous—an event not common in children, but when it does occur, almost necessarily of fatal augury. It may be doubted, therefore, whether it was altogether judicious to repeat the insufflation after symptoms of obstruction again showed themselves, although it seemed to offer the only prospect of saving the child's life, and its former success rendered us somewhat more willing to repeat the experiment."

OBSTETRICS AND DISEASES OF WOMEN.

ART. 5.—*Midwifery Statistics of Sweden.*—(*Edinburgh Medical Journal.*)

The statistics for 1862, the last which have been published, inform us that of the 134,060 mothers delivered of children during that year, 225 had to be delivered with the aid of instruments, being one instrumental delivery in every 595 mothers. Of these 225 instrumental deliveries, 208 were by the forceps alone, bringing into the world 210 children, of whom 139 were living, and 71 dead. In the remaining 17 instrumental deliveries, cutting instruments had to be used, which sacrificed the lives of all the children.

Of the 208 women delivered by forceps, 3 died; being one death for every 69.3 forceps cases. Of the 17 women delivered by cutting instruments, 3 also died; being one death in every 5.7 mothers so delivered.

Of the 208 women delivered by forceps, in 124 it was their first child. 20 of the women delivered by forceps were under 25 years of age; 54 were between 25 and 30 years; 101 were between 30 and 40 years; and 33 were above 40 years of age.

Of the 17 delivered by cutting instruments, in 6 cases it was their first child; 2 of the women were under 25

years of age; 4 were between 25 and 30 years; 9 were between 30 and 40 years; and 2 were above 40 years of age.

The women in Sweden are attended by midwives, who must undergo an examination as to qualification, and obtain a license before being allowed to practise. In 1862 there were 1,639 licensed midwives in Sweden, of whom 118 were in the city of Stockholm; and during that year 79 women received licenses to practise simple midwifery after examination; and of them, 54 were found competent to use instruments, and were licensed accordingly.

ART. 6.—*Amputation of Limbs in Utero.* (Edinburgh Medical Journal.)

At a recent meeting of the Obstetrical Society of Edinburgh, Sir James Simpson, in commenting upon a case that had been presented to the Society by Dr. Boyce, said he had seen seven cases in Edinburgh of intra-uterine amputation, all of left arm, with rudimentary fingers still existing, and he remarked that it was almost universally the left arm. He calculated, some years ago, that if this deformity was as common elsewhere as in Edinburgh—as was probably the fact—some forty thousand or fifty thousand such single-handed individuals probably existed in the world. The fact of the embryo generally lying on the left side might account for the left-arm amputations. He (Sir J.) related the case of a girl who had neither arms nor legs, residing in the Highlands; also a student, and lately an A.M. of the University, without arms, who wrote his exercises with his feet. Other members of the Society also narrated cases, almost all of which were amputation of the left arm.

SURGERY.

ART. 7.—*Encephalocele successfully Removed.* By THOMAS ANNANDALE, F. R. S. E., (Edinburgh Medical Journal.)

IN May 1866, I was asked by Dr. Mackenzie of Kelso to see with him an infant, æt, 7 weeks, who had been born with a large tumor springing from the back of his head. At birth the tumor was nearly as large as the child's own head, and shortly afterwards was tapped by the mother's medical attendant, and a large quantity of clear fluid drawn off. The sac speedily re-filled, and was attacked with inflammation, which was followed by sloughing of the most dependant portion of the tumor, and an escape of purulent fluid, which has continued ever since. On examination I found a pedunculated tumour, the size of a large pear, hanging from the occiput. At the lower extremity of the tumor there was a ragged opening (large enough to admit the points of three fingers) which passed into a granulating cavity, nearly the size of a hen's egg. The remainder of the tumor was composed of solid textures, principally skin and areolar tissue, thickened and œdematous. The pedicle or neck was fully an inch in length, and almost as thick as an adult thumb. It felt solid in consistence, and was closely connected with an opening, which could be felt in the occipital bone immediately below its occipital protuberance, although no actual communication could be detected between it and the interior of the cranium. The opening in the occipital bone was about the size of a shilling. The scalp round the pedicle and the skin of the upper part of the neck hung loose,—a result of the original large size of the tumor. The cavity already referred to was suppurating freely, and the child's strength was beginning to fail very much from this cause.

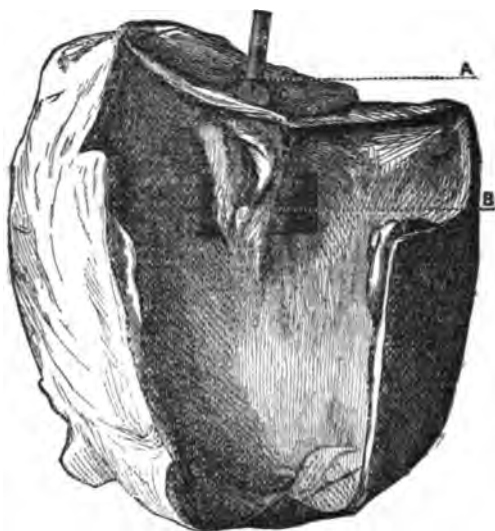
On considering the circumstances of the case, both Dr. Mackenzie and myself agreed that it would be right to remove the tumor, and thus get rid of the

local irritation which was affecting the child's health so seriously. I therefore proceeded to do this by passing a needle with a double strong thread through the neck of the tumor about half an inch from the bone, and each half of the pedicle was firmly ligatured by means of the thread in the same way as an internal pile is secured. The pedicle was then divided immediately external to the ligatures. No bleeding took place from the divided surface, and the child apparently suffered no inconvenience from the operation. The ligatures gradually separated, and the child made a good recovery in spite of a sharp attack of the measles, which came on a few days after the operation. Four months after the operation the child was perfectly well, and thriving, and presented no trace of the formidable disease from which he had suffered, except a small process of skin corresponding to the divided end of the pedicle.

Examination of Tumor removed.

The tumor, as before stated, was the size of a large pear, and presented at its dependant aspect an irregular-shaped opening, which passed into a granulating cavity. The cavity was completely closed except at this opening. The transverse section of the pedicle showed it to be composed of skin and condensed areolar tissue. At the centre of the section, and nearer to the posterior wall of the tumor, there was a solid process about the thickness of a large quill, round in form, and of a whitish color. The section of this process, although a distinct structure, was firmly adherent to the surrounding areolar tissue and could not be separated from it. (See C.) Immediately at the side of the process, and running parallel with it, was a canal having the diameter of a crowquill. (See A.) This canal was pervious, and allowed a probe introduced into it to pass down towards the posterior wall of the

tumor. Further dissection showed that the canal terminated in the apex of the process already mentioned.



Having stuffed the cavity, a careful dissection of the posterior wall of the tumor was made. The skin was first dissected off, but this was done with difficulty, owing to the adhesion which had taken place between it and the areolar tissue. Two or three layers of areolar tissue, all more or less matted together, were then removed, and the appearances which are illustrated in the engraving are met with.¹ In the centre of the posterior wall, at a point corresponding to the centre of the pedicle, there was a distinct pyramidal process (See B.) (a piece of whalebone has been passed under the process to show that it was unattached, except at its base and apex), the section of whose base has already been de-

¹In the engraving the pedicle is made to appear much shorter than it was in the preparation. This is owing to the cut surface having been presented, in order to show the opening of the canal, and the section of the process. The process has also been laid freely open to exhibit the termination of the canal in it.

scribed in connection with the pedicle. The base of the pyramid corresponded to the section of the process in the pedicle, its apex became merged in the posterior wall of the tumor. The process was about one inch and a half in length, was quite distinct from the surrounding structures, and was only separated from the cavity of the tumor by a thin layer of tissue principally composed of granulations. The canal passed into the substance of the process, and terminated there. The structure of the process was soft and pulpy, and of a dirty white color.

Microscopic examination (using a power of 200^o) showed numerous minute granules, lying amongst which were multitudes of circular, or slightly oval, corpuscles (somewhat smaller in size than the red corpuscles of the blood), which had a bright appearance, and well-marked outlines. Not feeling sure of the nature of these corpuscles, I asked my friend Mr. Turner to examine them. He reported that they reminded him very much of the small corpuscles found in the delicate connective tissue of the cerebrum. When a little water was added, these corpuscles became much paler, and their outlines less distinct. There were also some flattened bandlike structures which branched and formed an irregular net-work. They presented no definite markings, and it was difficult to refer them to any particular structure. Mr. Turner felt sure they were not nerve fibres.

Remarks.—Experience has shown that surgical interference in cases of encephalocele and spina bifida is very rarely advisable. The case just related illustrates a condition of the disease, which perhaps is the most favorable for an operation. An encephalocele or spina bifida occasionally undergoes a spontaneous cure by suppuration of the sac, and gradual obliteration of its cavity; and, no doubt, the great success of the operation in the present case was owing to the natural cure having commenced.

The pathology of the tumor is interesting, as showing,—

First. That although the canal or communication between the sac or cavity, and the interior of the cranium may be closed, it may still remain pervious in the pedicle or neck.

Second. That a distinct process not composed of nervous elements may pass down from the interior of the cranium into the walls of an encephalocele.

It is however, possible that this process was originally composed of nervous tissue, which had undergone some change in the progress of the case.

ART. 8—Case of Empyema, the Result of a Subscapular Abscess having burst into the Cavity of the Chest; Puncture through the Walls of the Abscess; Recovery. (Dublin Quarterly.)

A CASE of a child, of three years of age, was brought to me some months ago, by a naval medical friend, Dr. Goodman, of Her Majesty's Royal Naval Hospital, Port Royal, who happened to be in my neighborhood at the time.

This may have been, originally, a case of abscess, with the supervention of empyema, as the consequence of such abscess having burst into the cavity of the chest. But we had no data to go upon, the persons who brought the child for medical advice having known nothing, or comparatively nothing, of its previous history.

When I saw the child it had an enormous fluctuating tumor in the subscapular space on the right side. This was easily recognized to be an abscess. During the act of inspiration it became exceedingly firm and prominent, while it became less dense when air was expelled from the chest. This fact did not favor the

diagnosis, that the abscess was connected with the pleural cavity ; for, in such cases, the tumor is, generally speaking, observed to become full during expiration, and to recede during inspiration. Respiration was painful, and the chest, on the affected side, looked considerably fuller than on the left.

Physical signs could not tell us much, for the child yelled and screamed every time we approached it—so much so, that it became impossible to gain any information in this way. It was a perfect little tyrant ; and, unless held forcibly down, could not be kept in one position.

An exploring needle, plunged into the midst of the tumor, brought out pus ; and, on this opening being enlarged, a stream of fetid matter burst forth, *e pleno rivo*, intermixed with bubbles of air.

At each effort at expiration, the force of the stream became increased, and matter continued to flow until, at least a pint and a half had been evacuated. A pad of lint was now placed over the opening, and secured there, with the intent that it should act as a valve—by adhesive straps—and a bandage, passed around the chest, kept the parietes of the abscess—which, before this expedient was adopted—flapped, as air rushed in and out of the opening, together.

This child is now in good health, having, strange to relate, recovered rapidly, and without a single bad symptom.

The question now to be asked is—was this, originally, a case of abscess, with the subsequent supervention of empyema, as the consequence of such abscess having burst into the pleural cavity ? or was it a case of empyema, in the first instance, with the formation of an abscess in the subscapular region, from the matter having found its way outwardly afterwards ?

I am inclined to believe that the former is the true interpretation. It is not uncommon to find nature attempting to cure by the formation of subcutaneous ab-

scesses on the front of the chest, in cases of empyema; but the formation of such an extensive abscess on the back, and over and beneath the scapula, must be a rare occurrence, if, indeed, it has ever occurred at all.

In this case, the tumor was of large dimensions, and could not be emptied by pressure: and I believe the true explanation of the case to be that given at the heading of this article, viz.—that this was a case of empyema, occurring as the result of a subscapular abscess having burst into the cavity of the chest.

ART 9.—Case of Double Hepatic Abscess, occurring as the Result of a Prolonged Attack of Dysentery; the Fluid evacuated through a Puncture made in the Abdominal Wall, after Union had been artificially established between the latter and the Liver: Recovery.

Several years ago, a Mustee* man, named Archibald Morrison, aged about forty-five, was under my care for chronic dysentery, from which he had been suffering for some time, and by which he had become reduced in bulk, and miserably weak. He suffered much from a constant dull aching pain in the right side and shoulder; while his yellow skin became still more yellow, and his conjunctivæ discolored from biliary infiltration.

When he had been under my care for some time the pain and swelling in the hepatic region became more urgent, I made a careful examination of his right side, which appeared considerably larger, in the hypochondriac region, than the left, even before his clothes had been removed.

The extensive dullness, on percussion; the deep-seated, dull, dragging pain, and sense of weight in the right hypochondrium; the short breathing, and dry cough; coupled with the fact of his having suffered from a pre-

* A Mustee means one born of parents of whom one is a white person and the other a mulatto—the latter being half white and half black.

existent and prolonged attack of chronic dysentery—all pointed to the liver as being the diseased organ. It was blistered; mercury was given, but with care, as the man had been previously wasted, from his dysenteric affection; and nitro-muriatic acid, which is my favorite tonic in cases of sluggish liver and after fevers, was frequently administered.

I soon, however, discovered unmistakable signs of the formation of an abscess. A tumor projected from beneath the ribs in front, of stony hardness in its circumference, but, evidently, softer towards its centre. Rigors, and hectic sweats at night, with a mitigation of the acute pain, and daily increasing fullness beneath the ribs, confirmed the diagnosis; and I became certain that a large abscess had formed.

I will admit that I had very little for this poor fellow; but I felt it to be my duty to do all I could to save him. He lived a very short distance from my residence, and I was, therefore, able to see him constantly. I brought his case to the notice of the good rector* of the parish: and, between us, we supplied him with delicacies, and with a constant supply of good port wine.

I daily painted the circumference of the tumor with a very strong solution of nitrate of silver, having first ascertained that there were no adhesions, and that the abdominal wall could be rubbed and moved freely over the surface of the tumor at all points. Adhesive inflammation set in, after a time, in the ring formed by the application of the caustic, which was, nevertheless, steadily and continuously applied for at least four weeks. The centre of the tumor became, every day, more soft and fluctuating, and the abdominal parietes, at this point, became thinner and thinner. I could not move the abdominal wall here now. It appeared to have become firmly attached to the organ beneath; and the time

* The Rev. C. H. Hall.

had come to evacuate the abscess. Accordingly, and not without some degree of anxiety, I punctured the abscess with a long-bladed knife, and immediately a fetid stream issued forth. At least a quart of thin, yellow, horribly fetid stuff came away at the time. The abscess continued to discharge for, I believe, three weeks after; and the swelling gradually subsided. The man continued to be well fed, and to take nitro-muriatic acid three times a day. He perfectly recovered; and I frequently see him, now, working in his cane field; nearly four years having elapsed since the abscess was opened in his side.

In conclusion I have to add that the dysenteric attack, and the formation of the hepatic abscess in this case, stood, in the relation to each other, as cause and effect. It can be easily imagined how readily a prolonged attack of dysentery, where pus is freely secreted by the mucous membrane of the rectum, may terminate in the formation of one or more abscesses in the liver. The explanation is very simple. The internal hæmorrhoidal veins become charged with pus globules, which are carried up, by the portal circulation, to the liver, where they lodge and multiply; and an abscess, or abscesses, more frequently, is the result. Since writing the foregoing, I have this day (Oct. 22d) seen and examined Archibald Morrison.

I find that there were two distinct abscesses, which I opened, within the ring of adhesion, at different times, a large quantity of pus being discharged on each occasion. The liver appears to have acquired its natural size; and the abdominal wall, in front of it, is considerably puckered and drawn in; showing clearly, and without doubt, complete union between it and the organ beneath. The cicatrices of the two openings, made by the knife, are very apparent, and have an extraordinary appearance. They are situated in the very centre of the body, between the umbilicus and the ensiform cartilage, being above two inches distant from each other; and each having a depression, or pit, in its centre.

The man tells me that he enjoys very good health, with the exception that he sometimes feels an uneasy sensation in the right side, which, indeed, is not to be wondered at.

Varia.

BRUNETTI'S PRESERVED HUMAN FLESH.—Every one has heard of the wonderful discovery of an Italian surgeon, forty years ago, by which he petrified human flesh, and was able to cut the body into transverse sections for the manufacture of tables and the like, the various colors being perfectly preserved; and how this surgeon, after completing his invention, died suddenly without having disclosed the secret. Ever since then other Italian surgeons, with his specimens before them, have been seeking the lost secret, and in their searches have fallen on something else. Here is Dr. BRUNETTI, of Padua, who exhibits a large collection of preserved human flesh, healthy and diseased, for which the jury of the Exhibition on that class have granted him a grand medal. If it was a little of a stretch to give an exceptional prize for surgical instruments, there was none here, for this is a discovery without competition, or without any pretention to competition.

Great advances have been made in preserving anatomical specimens by means of chlorate of potash, arsenic and other preservatives; there are even some excellent specimens of this kind at the Exhibition; but if damp, they eventually decay, and if dry, they warp, shrink and get out of place. By M. BRUNETTI's discovery we have none of this. The first glance at his preparations gives one the idea of ligneous fibre boiled and dried; but the colors are tolerably well preserved. His specimens do not look petrified, and are not; they look, on the contrary, dry, porous and light, and as if they would last for ages. Here are specimens of healthy and dis-

eased liver, of healthy and diseased lung, of healthy and diseased kidney—in fact, of healthy and diseased tissue from all parts of the body. In the lung we see specimens of interstitial granulations, of tubercles, and of cavities after abscesses. All this is so plain that a child might learn how the lung looks in the various diseased states to which it is subject. So, too, there are slices of liver and kidney showing fatty degeneration and cirrhosis of the first, and Bright's disease of the latter.

The process of Dr. BRUNETTI comprises several operations, viz.: 1, the washing of the piece to be preserved; 2, the *degraisage*, or eating away of the fatty matter: 3, the tanning, and 4, the desiccation.

1. To wash the piece M. BRUNETTI passes a current of pure water through the blood vessels and the various excretory canals, and then he washes the water out by a current of alcohol.

2. For destroying the fat he follows the alcohol with ether, which he pushes, of course, through the same blood vessels and excretory ducts: this part of the operation lasts some hours. The ether penetrates the interstices of the flesh, and dissolves all the fat. The piece, at this point of the process, may be preserved any length of time desired, plunged in ether, before proceeding to the final operations.

3. For the tanning process M. BRUNETTI dissolves tannin in boiling distilled water, and then, after washing the ether out of the vessels with distilled water, he throws this solution in.

4. For the drying process Dr. BRUNETTI places the pieces in a vase with a double bottom filled with boiling water, and he fills the places of the preceding liquids with warm, dry air. By the aid of a reservoir, in which air is compressed to about two atmospheres, and which communicates by a stop-cock and a system of tubes, first to a vase containing chloride of calcium, then with another heated, then with the vessels and ex-

cretory ducts of the anatomical piece in course of preparation, he establishes a gaseous current which expels in a very little time all the fluids. The operation is now finished.

The piece remains supple, light, preserves its size, its normal relations, its solid histological elements, for there are no longer any fluids in it. It may be handled without fear, and will last indefinitely. The discovery is a magnificent one, and the sooner medical schools are provided with full cabinets of natural and pathological pieces the better.—*Paris Letter, N. Y. Times.*

A HORSE IN THE ACADEMY OF MEDICINE!—Lately a horse threw the Academy of Medicine into quite a fever. More proof was wanting to satisfy the doubting as to whether a horse could have spontaneously—what shall I call it?—horse-pox or cow-pox? At least, the variolous disease known in cattle as cow-pox. At last, there is no doubt about it. A horse belonging to M. Pietri, the Prefect of Police, has had the disease; a committee of the Academy satisfied themselves of the fact. The pustules were found on the lips and nose, and were perfect in their physical characters. A considerable number of children were vaccinated with the matter and were infected in the regular way.

NEW THEORY OF CHOLERA.—At a late meeting of the Yonkers (Westchester County) Medical Association, Dr. E. Mortimer Deey, read a paper on Asiatic Cholera in which from an examination of the facts connected with the history, development, and manifestations of this disease, he concludes that the essential cause is of a specific nature, and subject to the laws that govern organic life. That this cause acts principally upon the nerves of organic life, and especially upon the splanchnic nerve, the irritation of which he claims by physiological induction will give rise to the peculiar manifestations of this disease. Lastly from an examination of

the pathological conditions of the blood &c., in this disease, he claims that in chloride of sodium we have an antidote to this organic poisonous cause, and that the success of the different plans of treatment that have been employed, fully warrant the conclusion that this agent, chloride of sodium, is the most efficacious remedy yet discovered. We leave our readers to judge for themselves the correctness or plausibility of this, theory, which we believe we have in no way misrepresented.

DIED, at Galveston, Sept. 9th, Brevet Major Samuel Adams, Assistant Surgeon, U. S. A., son of the Rev. C. C. Adams of Manhattanville.

Dr. Adams came of a patriotic race in both lines; his paternal grandfather served in the army, and his maternal in the navy, in the war of 1812; and both great grandfathers were clergymen; one was chaplain at the Battle of Bunker Hill, and the other received a vote of thanks from the Corporation of the City of Boston, for services rendered in the Revolutionary war.

Dr. Adams entered the army at the beginning of the war, served one year in hospitals, and then joined the army of the Potomac under Gen. McClellan, and continued with it until the surrender of Lee, and rose from the position of Surgeon of a Regiment to Medical Inspector of the Ninth Army Corps, and was promoted for meritorious conduct at the taking of Petersburg.

His last months and days and nights were spent in ministering to the sick and dying, and he fell a victim to over exertion in saving the lives of others.

But his true glory was his accomplished Christian character. He became a communicant of the church at twelve years old, and his whole life was devoted to God, and the good of his fellow men, and the service of his country. A brother surgeon said of him shortly before his death, "Dr. Adams knew no evil."

His great intellectual endowments were sanctified by deep Christian humility. He esteemed all others better than himself, and was never known to express any professional envy or jealousy, or to speak evil of any one.

The following extract from General Order No 30, by Gen. Griffin, announcing his death, shows the estimation of his commanding officer.

"After having relieved so many he at last fell a victim to the disease himself."

"He leaves behind him a bright example of a Christian gentleman, and a faithful soldier."

DEATH OF PROFESSOR WEBER.—The German journals announce the death of Dr. Weber, Prof. of Surgery at Heidelberg, under the following painful circumstances :—It was necessary to perform tracheotomy in a case of diphtheria, and in the course of the operation a clot of blood got into the trachea. M. Weber attempted to extract it by suction in the absence of a proper instrument, and failing to do so, his two assistants attempted the same. All three died within six days of diphtheria.

DEATH OF DR. JAMES JACKSON.—Dr. James Jackson, the revered head of the medical profession in Boston, was born in Newburyport, Mass., Oct. 3d, 1777, and graduated at Harvard College in 1796. He took his degree of Doctor of Medicine in 1809. He became at once distinguished as a devoted and faithful practitioner, and a zealous student of medical science, and in 1812 he was appointed Professor of the Theory and Practice of Medicine in the Medical School of Harvard University, which office he held for twenty-four years. In 1817, on the 6th of April, he was chosen the first physician of the Massachusetts General Hospital, which office he held with an honor to himself and an advantage to the institution and the interests of the medical profession too well known to need any eulogy from us, until October 13th, 1837. He was several times elected President of the Massachusetts Medical Society.

THE NEW SYDENHAM SOCIETY.—The publications of this Society, to which we called attention in our last number, may be obtained in this city of Dr. C. F. Heywood, No. 16 West 32d street.

OHIO MEDICAL COLLEGE.—Dr. P. S. Conner has been appointed Professor of Medical Chemistry and Physics.

DEATH FROM CHLOROFORM.—Another death produced by chloroform (and there is scarcely a month that the English journals do not announce one in the most simple and natural manner possible) has just happened at Manchester, under deplorable circumstances. John Arnold, aged 8 years, was operated on for strabismus, at the Hospital for Diseases of the Eye, on the 6th of July; and for this slight operation chloroform was given him. Two hours after, he was dead; and the jury had declared simply that this accident had happened under the influence of the chloroform. Multiplying, as they do, especially among children, these catastrophies should open the eyes of English surgeons, and render them more reserved in the employment of this anæsthetic in small operations. The responsibility is all the greater that the patient is subjected to the 'chloroformization' without being able to know or understand its dangers. For the mere convenience of facilitating their operations, or to avoid slight pain, the English surgeons should not expose life. Otherwise, they must be subjected to the charge of being incorrigible, and careless of the lives of their fellow-creatures. The question is suggested, how is it that in the presence of these repeated accidents, public opinion—not to say public indignation—does not so lift up its voice against the practice as to proscribe it and put it down? —*Union Medicale.*

NEW YORK MEDICAL JOURNAL:

A MONTHLY RECORD OF
MEDICINE AND THE COLLATERAL SCIENCES.

VOL. VI.] NOVEMBER, 1867. [No. II.

Original Communications.

Remarks on the Pathology and Treatment of Urethral Calculi, and of Foreign Bodies in the Urethra. By CHAS. C. LEE, M. D., New York.

Case.—On the 12th of last July, I was asked by my friend, Dr. Alexander N. Dougherty, of Newark—a distinguished member of the Corps of Surgeons of Volunteers during the late war—to see a case of impacted urethral calculus, which he proposed to remove by perineal section.

The patient was a little boy, four years of age, who had suffered from occasional attacks of dysuria for the past year; but with greatly aggravated distress for the last two months. He had been in charge of a homœopathic practitioner who, making no local examination,

had failed to detect the mechanical obstruction, and had treated the child for inflammation of the bladder, of course with no result.

The boy was emaciated, and presented the worn and haggard aspect produced by long-continued vesical irritation; his health was gradually waning, his appetite had failed, and sleep was often interrupted by the efforts to pass water, frequently amounting to violent stamping. Complete retention had never occurred, but the bladder was constantly distended, and the overflow passed by dribblets and with difficulty around the impacted mass.

Under these circumstances the parents demanded surgical assistance, and placed the case in the hands of Dr. Dougherty, who, suspecting stone in the bladder, etherized the child, and at once discovered a calculus situated about one inch in front of the bulb of the urethra. No vesical concretion could be detected.

Dr. Dougherty made an effort at this sitting to dislodge the stone and push it back into the perinæum, but without success, for it seemed firmly attached to the urethral mucous membrane. It was manifestly too large to extract through the meatus without a long course of dilatation, which the child's health did not warrant. The only alternative was its removal by perineal section, which from the position of the obstruction, would necessarily have to be made some distance behind the calculus so as to avoid the scrotum. When the patient was fully chloroformed and before the operation was begun, I made a second attempt to push the stone into the perinæum, but effected nothing; it seemed

either caught in an urethral lacuna or attached on one side to the mucous membrane, although it possessed a certain mobility at its point of attachment. The sensation communicated to the sound was that of two calculi, but was caused by the peculiar formation of this single stone that was extracted. As the smallest staff at hand was too large to pass freely by the calculus, I introduced, at Dr. Dougherty's request, a large grooved director, upon which he made his perineal incision well behind the edge of the scrotum ; after enlarging this anteriorly about half an inch, a long slender pair of Wiess' urethral forceps was inserted, and, with some difficulty, the calculus was extracted. The urethra was carefully injected with tepid water and all the calculous debris washed out through the perineal wound ; after a careful examination of the bladder, which elicited no further evidence of stone, the thighs were loosely fastened together and the little patient placed in bed, as after the operation of vesical lithotomy.

An inspection of the stone, which was oblong and about the size of a large bean, revealed a roughened space on its surface about 3 lines in diameter, by which it had probably adhered to the ulcerated urethral wall. It also explained the sensation of multiple calculi imparted to the sound, for a portion of the cortical layer had peeled off and was lying loosely upon the body of the calculus. The child recovered well from the operation ; but, as calculous symptoms persisted, Dr. Dougherty made another more careful examination at the end of three weeks, and, recognizing the presence of stone, lithotomized him by the lateral method, removing three calculi of

the respective weight of 4.38 and 48 grains. The urethral calculus also weighed 4 grs: and all consisted mainly of the urate of ammonia. Recovery was rapid and unimpeded.

In a somewhat analogous case, occurring lately in the practice of Dr. Van Buren, he informs me the stone was found impacted in the membranous portion of the urethra behind the triangular ligament; he pushed it back into the bladder, whence it was at once extracted by lithotomy. The calculus was of uric acid, and weighed eight (8) grains; the patient was a child about the same age as in the former case.

Professor Grube, of the University of Charkow, records (Berlin Klin. Wochenschrift, 1867, No. 5) a series of 58 interesting cases of urethral calculus, occurring in his private and hospital practice, nearly all of which were found in the fossa navicularis. Of these 49 were extracted with forceps of various kinds, 5 by perineal urethrotomy, 2 by lateral lithotomy, and 2 by lateral urethrotomy of the spongy portion of the urethra. Both the cases where lateral lithotomy was performed died of uræmic poisoning and diffused inflammation of the kidney. In one remarkable case the stone, of which a woodcut is given, was very fragile and difficult of extraction, and weighed 5 ozs. 7 drs., measuring $1\frac{1}{2}$ in. in diameter, $7\frac{1}{2}$ in. along its outer semicircular border, and $4\frac{1}{2}$ in. along its lesser inner border. Four cases of urethral diverticula are also reported, of which two contained calculi and two were empty.

Remarks.—Urethral calculi are met with in both the original and secondary forms. In the former case a

foreign body, introduced from without, is nearly always the nucleus of the calculous deposit ; and the variety of substances so used would be the more surprising did we not know the absurd devices by which both sexes seek to gratify a perverted sexual instinct. Pipe stems, pieces of wood, straw, needles and pins, pebbles, chicken bones, etc., are all mentioned by different authors as lodged in the urethra and requiring operative interference for their removal. Only a few months ago Dr. C. M. Allin removed a piece of ivory pen handle from the bladder of a man, in the New York Hospital, who had passed it into the urethra for the purpose of dilating a stricture; and, while I was House Surgeon to the Pennsylvania Hospital, Professor Pancoast lithotomized a patient in that institution who had introduced a large piece of slate pencil for purposes of onanism; as usual, it escaped his grasp, and worked its way into the bladder where it soon became heavily incrustated with urinary deposits.

Dr. Van Buren * relates a still more curious and interesting case of analogous character, in which a head of wheaten straw was introduced by an old man into his urethra, and, passing gradually into the bladder, formed the nucleus of a large calculus, for which he was lithotomized at Bellevue Hospital. Morgagni states that, in his day, it was not uncommon for lascivious women to introduce into this canal the golden pins worn in their hair; and Morand quotes the case of a girl of twenty who had inserted a toothpick into the urethra,

* Contributions to Practical Surgery, p. 144.

whence it soon slipped into the bladder and was finally removed by lithotomy. "Rigal was obliged to remove from the bladder of a young female a wooden needle case, which she had passed into the urethra in masturbating. Pamard mentions an instance in which the foreign substance was an ivory whistle, three inches and a half long, and five lines in diameter." *

Mr. Avery † reports a case in which an ordinary hair pin had been passed into the urethra with the bent end foremost; when the patient let go the pointed end, they sprang sideways and gradually became imbedded in the urethral walls at some distance from the meatus. The ingenious device was adopted of introducing a straight metallic tube into which the points of the pin were conducted and fixed; "both the tube and pin were then easily withdrawn." Mr. Birkett refers, in the same connection, to cases occurring in his own practice where silver or gutta percha catheters were broken in the urethra and the portions remaining were successfully removed by lithotritry or the forceps. Lallemand records the case of a man, aged fifty, from whose urethra he excised a sail maker's needle, nearly four inches long; and Soulé ‡ relates one very similar to that of Mr. Avery. Dr. Gross § quotes two very interesting

* Holmes' System of Surgery, II. 488.

† Gross on the Urinary Organs, p. 837.

‡ Instead of the simple method of extraction used by Mr. Avery, however, M. Soulé adopted the plan of Boinet who forced the points of the pin through the floor of the urethra, separated them as widely as possible transversely, and then cut it out and pulled out the other.

§ Loc. cit. pp. 838-9.

instances of the same morbid tendency, occurring in the practice of Dr. James R. Wood of this city. In one of these a pewter spoonhandle five inches in length, had slipped into the urethra of an old man of seventy-two who had used it for purposes of onanism; it was found impacted at the junction of the bulbous and membranous portions of the urethra, whence Dr. Wood removed it with the urethral forceps. In the other case "the foreign body was a piece of leather, eighteen inches long, and about the size of a No. 7 catheter. The patient was a man forty-five years of age, who, while practicing onanism by means of this substance, found himself unable to withdraw it, although he used great exertion to do so. When Dr. Wood saw him soon after the accident, some inches of the string were seen to protrude at the external orifice; while the other end, rolled up into a hard and firm knot by the patient's manipulations, was discovered in the bladder by the finger in the rectum. By great and steady traction upon the free extremity of the foreign body, maintained for fifteen minutes, aided by division of the meatus to allow the knot to pass, he finally succeeded in extracting it." Through the courtesy of my friend Dr. Hull, curator to the New York Hospital, I have been permitted to examine a curious analogous specimen in the pathological museum of that institution. It consists of a collection of fragments of brick, 67 in number, which at different times were removed from the bladder of a negress who was accustomed to grease them and introduce them into the urethra for the purposes of deception. They vary in weight from a drachm to half an

ounce, and a medium sized piece measures $2\frac{1}{2}$ inches in length by $\frac{1}{4}$ in. in breadth. Two specimens of urethral calculi—marked 816 and 817 respectively—are to be found in the same collection; the first consists of triple phosphate and measures $\frac{1}{4}$ inches in length by $\frac{1}{8}$ inch. in diameter, while the other is about the size of a pea and is composed of oxalate of lime and uric acid.

In the second class of urethral calculi, which is much more common and consists in the arrest of a nephritic or vesical concretion in its outward progress, the case is less apt to come under the surgeon's notice in its first stage. Early retention is very rare, and, although the patient suffers, he is unaware of the cause of his distress unless the calculus be arrested anteriorly to the scrotum. It may be simply impacted in the canal, which dilates behind it; or it may become encysted in a cavity—sometimes formed of the urethral parietes, sometimes of indurated connective tissue exterior to the canal. In the latter case, the symptoms may evidently be trivial, as there is very little obstruction to the flow of urine. Thus a case occurred in the Pennsylvania Hospital, in 1842, in which an urethral calculus weighing four ounces was removed by perineal incision from a boy twelve years old. He had undergone vesical lithotomy two years before, and had remained well for three months when he began to suffer from difficulty in micturition with some pain at the close of the act, while his scrotum seemed swollen and tender. This condition continued until he received an accident for which he was admitted to the Hospital, and it was only then this calculus was accidentally detected. No ill ef-

fects followed the operation, but the urethral wound became fistulous, and all attempts at keeping a catheter in the bladder excited erysipelalous inflammation. A few days after the urethral calculus was excised, another small stone was detected in the bladder, and was crushed with Heurteloup's lithotrite in three sittings.

Impaction of the calculus in the canal, on the other hand, gives rise to great distress by pain, frequent desire to micturate with inability to complete the act, irritability and distention of the bladder, urethral fever; and, if the cause be not soon removed, to these results are added chronic cystitis, dilatation of the ureters with chronic inflammation of their lining membrane, pyelitis, and, finally, such organic alteration of the secretory structure of the kidney as lead to arrest of its function, to coma, and to death. Such a termination would undoubtedly have been the finale of the medical treatment to which the case detailed in this paper was originally subjected, unless ulcerative absorption of the urethral walls had occurred and nature had thus provided a cyst by the expansion, thickening, and induration of the surrounding structures. In more than one recorded case, indeed, the concretion has effected its own expulsion by exciting absorption (by pressure) of the adjacent tissues until they give way as far as the skin, and this is finally ruptured by the violent efforts at micturition; but this is not only exceedingly rare, but, where such a tendency exists, death by extravasation of urine is far more likely to occur.

In view of the grave results that flow from this condition, its early recognition and appropriate treatment

are of the first importance. The former is fortunately attended with no difficulty, if ordinary discretion and skill be used in the investigation. The symptoms of urethral calculus being almost identical with those of stricture and stone in the bladder, an examination with the sound, probe, or catheter naturally suggests itself at the outset. Of these, the solid steel sound, highly polished and of the proper curvature¹ is certainly preferable, as it is more manageable than the catheter; and, being solid, is a more delicate conductor of sound and passes of its own weight more readily along the canal. This is introduced slowly and gently in the usual manner and, the instant it comes into contact with the calculus, a peculiar grating sensation is produced, which, to a practiced hand, is unmistakable. The diagnosis is substantially made. It is only when the stone is impacted in the prostatic, membranous, or bulbous portions of the urethra that even this amount of effort is required to detect it; if it lodged in the spongy portion, especially if anterior to the scrotum, a digital examination alone may suffice. In the former case, the sounding should always, as a precautionary measure, be accompanied by a finger in the rectum, to guard the stone from being pushed back in the bladder. In rare cases where the calculus is completely encysted, it may of course escape detection by the sound; but there ex-

¹ The best curvature for sounds yet employed is undoubtedly that introduced in this country by Prof. Van Buren and in England by Mr. Thompson, which represents an arc of 3-10 of a circle of which the diameter is $3\frac{1}{4}$ inches. V. Thompson on Stricture. Pp. 153-4.

ternal manipulation generally suffices to decide its character.

The *treatment* of urethral calculi, or of any foreign body lodged in the urethra, must necessarily be influenced by the location of the obstruction and the urgency of the distress it produces. If, as in exceptional cases, the impaction occur near the neck of the bladder, and the concretion be of considerable bulk—more especially if retention of urine already exist—it is best to introduce a large sound or catheter, and push the stone back into the bladder; there it can be crushed or removed by lithotomy, either proceeding entailing less risk than bruising or lacerating the prostate gland with the forceps.

But ordinarily the treatment will consist of either extraction, excision, or, more rarely, of crushing or drilling the mass *in situ*.

Extraction is certainly applicable to the great majority of cases, and should always be attempted when the obstruction is moderately smooth and small, and occurs anteriorly to the triangular ligament. If near the meatus, this may be effected by very simple means, as a pair of dissecting forceps or narrow bladed dressing forceps, or even by the fingers. When the concretion is lodged deeply in the canal, the *wire loop*, suggested by Marini, and often used with success by others,¹ may be insinuated behind it and the stone extracted like a cork from a bottle. This consists of a strong silver wire fastened securely to a stylet, or (as modified by

¹ V. Cases reported by Dr. L. Utley, in Boston Med. and Surg. Journal. XII, 237

Cloquet) passing through a silver canula, and worked by a side screw; but the appliance is at once uncertain and objectionable from the manifest difficulty of passing the wire around a mass already large enough to fill the canal. Far more efficient is the urethral forceps, of which a great variety have been devised, though all are constructed upon the same principles. Civiale's and Bonnet's which are, properly, articulated scoops supplied with a head and stylet for seizing and fixing the foreign body, are perhaps the most ingenious; while those of Amussat, Sir A. Cooper, Leroy d'Etiolles, Wiess and Hunter's forceps, modified by Ferguson, are all applicable to the majority of cases. Reference has already been made to the anomalous cases of Avery, of Boinet, and Soulé, in which none of these instruments would have availed; such difficulty, however, is less apt to occur from a calculus than when foreign bodies have been introduced from without, lodging deeply in the urethra, or penetrating its walls, and great tact and ingenuity are often demanded to meet these conditions.

In all efforts of extraction, the chief obstacle will occur at the meatus—not only the narrowest but the most undilatable part of the canal;—if such difficulty exist and laceration of the part threaten, the orifice should at once be incised with a probe pointed bistoury or the urethrotome caché, when extraction will be simple and immediate.

Vidal¹ records an extraordinary case, and Dr. Gross²

¹ *Pathologie Externe*, Seconde Edition, V. 109.

² *Treatise on Urinary Organs*, p. 842.

relates a similar one as occurring to Raynaud of Montauban, in which, to his own surprise, he extracted a pin from a child's urethra, by means of a common silver catheter. The catheter was introduced with the convexity towards the symphysis pubis until the point reached the triangular ligament, when it was suddenly reversed by the *tour de maître* and withdrawn. The pin was lying in the eye of the catheter. Prof. Gross justly regards such achievements "as examples rather of good luck than of any particular skill in the operators."

Crushing or drilling the mass *in situ* is a process rarely attempted, either with calculi or foreign bodies. If, however, the stone cannot be extracted, and if valid objections to excision exist—as when the obstruction is lodged in front of the scrotum—urethral lithotripsy may be adopted. For this purpose the spoon-shaped lithotriptor of Leroy d'Etiolles may be used or, better, a modification of Hunter's forceps to which a steel drill is added; the latter consists of a canula enclosing a rod terminating in a three bladed forceps, and perforated by a hard sharp drill. The canula is introduced closed, like a straight catheter; when it touches the stone, the canula is withdrawn, the forceps expands and grasps the calculus; the canula is again pushed forwards, and the stone, thus secured, is rapidly broken by the drill into pieces small enough to be washed out by the urine. The drill is worked by the hand alone or, if needed, a rack and pinion may be added to it.

But the difficulty of recognizing a soft or friable calculus in this situation, and the greater delicacy required

in the operation, have combined to make urethral lithotomy an exceptional procedure.

Excision is required when extraction fails, and the stone is disinclined to move in either direction; the steps of the operation will vary according to the locality of the calculus. If situated in the prostatic urethra, the old Celsian operation of "cutting on the gripe,"¹ may be necessary; the bowel having been thoroughly emptied, the fore and middle fingers of the left hand are introduced into the rectum, and the stone is pushed forward and made prominent in the perineum where, either by a semilunar, lateral, or median incision, the foreign body may be exposed. It may then be either pressed out with the fingers, or extracted with the scoop of forceps. The risk of wounding the rectum in this attempt, however, makes it preferable to push the stone back into the bladder and remove it by lithotomy, if at all practicable.

When arrested in the membranous or bulbous portions of the urethra, or in the spongy portion behind the scrotum the usual operation of external urethrotomy or "perineal section" is to be performed; and this may be done either upon the foreign body directly or upon a fine staff or grooved probe when that can be insinuated past the obstruction.

If, however, the stone present itself in the scrotal portion of the urethra or anterior to the scrotum, direct excision will be hazardous; in the one case from the danger of abscess and urinary infiltration into the

¹ V. Celsus, De Medicinâ. Lib. VII, cap. XXVI.

lax tissues of the scrotum, in the other from the risk of intractable penile fistula. If incisions be practised at these points, Dr. Gross advises that the wound be stuffed with lint or its edges cauterized, and the urine retained as long as practicable; but, should all efforts at extraction fail, it will be far safer to push the stone back within reach of a perineal incision, or, if that be impossible, to crush it *in situ*.*

Two Cases of Tracheotomy for Croup caused by Diphtheria. One successful, the other unsuccessful. By WM. H. SHERWOOD, M. D. Unionville, Lake Co., Ohio.

Sept. 18th, 1861. Case 1st.—Edwin Preston, æt. 8 years and six months. He was short in figure, but perfectly developed, quite fairly nourished and of happy disposition. He complained of headache and soreness of his throat. His pulse was slightly accelerated, skin cool and a little moist. On examining his throat I found the mucous membrane considerably inflamed with a gray deposit upon the inner and lower surface of the left tonsil, which gave rise to some pain on degluti-

* In his notes to Liston's "Lectures on the Operations of Surgery" (Philadelphia Edition, 1846), the late Prof. Mütter describes a remarkable case under his own care, in which an urinary concretion filled the urethra from the prostatic sinus to within a inches of the meatus. In this instance none of the usual methods of treatment was practicable, and the calculus was removed piecemeal with a pair of cutting forceps constructed for the purpose.

tion. I gave him ten grains of calomel, to be followed in four hours with castor-oil, and applied the common Tinct.-of-Iodine to his throat with a camel's-hair brush, and directed a saturated solution of the chlorate of potassa for common drink—in addition he took one grain of quinine with five drops of tinct.-ferri-murias every four hours. This was Sept. 18th. The following day the soreness of his throat and the deposit had nearly disappeared, and on the 20th he considered himself well, and to all appearance was out of danger. But on the same evening I was summoned in haste to see my little patient, the messenger claiming that he had the croup. My worst fears were realized, there was the characteristic cough with stridulous breathing, though respiration did not seem much impeded. I ordered fifteen grains of ipecacuanha, and after emesis directed ten grains of calomel to be given every three hours, with two grains of ipecacuanha, until it operated as physic freely, and then to give five grains of Dover's Powder and continue the calomel until I called again. Sept. 21st symptoms much the same, but slight improvement, if any, though less stridulous breathing—skin warm, though not hot, pulse accelerated, bowels had acted twice, stools green, ordered to continue the calomel guarded with small Dover's powders, and prescribed a volatile liniment to the outside of the throat and chest. The 22d there was no improvement, breathing much the same. My father, Dr. M. P. Sherwood, saw him with me, and advised an emetic and to continue the calomel alternated with a grain of quinine, agreeing with me that tracheotomy would become necessary unless there was an im-

provement soon. The parents of the child were made aware of its necessity, and gave their consent. We concluded to defer the operation a while, hoping there might be a favorable change. Early on the morning of the 23d we found him much worse, with head thrown back, countenance livid, skin moist and warm, pulse nearly the same in frequency, but feeble. After summoning Dr. T. S. Bidwell to assist us, and getting ready for the operation, I concluded to give chloroform, calculating to desist should it increase the dyspnoea, but as it did not, anæsthesia took place tardily. The space between the cricoid cartilage and the isthmus of the thyroid was selected, an incision about one and one half inches long was made in the mesial line, commencing at the middle of the thyroid cartilage, and continued downwards below the cricoid, exposing the trachea, after a little careful dissection, between the latter organ and the isthmus. A blunt hook was now called into requisition, to draw the isthmus down and increase the space for the tube. Space being thus obtained a narrow-bladed scalpel was passed into the trachea, a circular piece cut out, and a large-sized double trachea tube was introduced. At this period of proceeding, respiration seemed entirely suspended. The Marshal Hall method was persevered in for some minutes, and, finally to my great joy and satisfaction, respiration was fully established, considerable frothy and bloody mucus was thrown off, and the patient was placed in bed expressing himself as feeling better, and that he thought the disease had turned. The 24th, I found him quite comfortable, had slept well, the tube had been

but slightly obstructed through the night, skin of natural color and temperature, pulse slow, and less feeble; ordered one grain of quinine to be given once in four hours, and beef tea for nourishment, to continue the chlorate of potassa for common drink. 25th, had passed a restless night, pulse quick, skin hot; had voided urine which was highly colored; expectoration thick and glutinous; ordered to omit the quinine and beef-tea, and take fifteen drops of syrup of ipecac, and ten drops of spirit's nitri dulcis every four hours. The 26th had passed a tolerable comfortable night, the tube requiring cleaning quite often. The 27th, tracheitis having ensued, all of his symptoms were worse, with at short intervals extreme dyspnœa. I removed the tube and injected one fourth of a grain of nitrate of silver to the ounce of soft water into the trachea through the wound. This produced apparently no more dyspnœa than the thick tenacious mucus had previously, and led to a copious discharge of soapy accumulation, which produced marked relief. He was then ordered a weak solution of antimony once in four hours, omitting everything else but a little water gruel. 28th, found him much more comfortable, he had less difficulty of breathing from accumulation of mucus; skin natural; voided his urine; bowels had acted and he has slept some. But as the opening in the trachea was diminishing some in size from a kind of puffiness of the tissues, and fearing imperfect hematosis would be the result, I determined to introduce the tube again. This having been done, he was ordered to continue the antimony and take the beef-tea again. The 29th found

him quite comfortable, he had rested well and takes beef-tea with a relish. Ordered to omit the antimony and take the chlorate of potassa as before. Sept. 30th, had passed a quiet night; the tube had come out; had expectorated through the wound, appetite improving. I put my thumb over the wound and directed him to breathe, but very little air passed through the larynx. I replaced the tube. October 1st. Is improving, breathing is perfectly free through the wound and less obstructed through the larynx. He was ordered one grain of quinine every 8 hours and to continue the chlorate. The tube was removed October 2d, the patient is every way better, has expectorated for the first time through the mouth, breathes freely through the larynx, continues the quinine. October 3d, wound contracting, more discharge through the mouth, larynx seems unobstructed, sits up and walks about his room. Ordered to continue the quinine. October 4th, wound contracting rapidly, continues the same. October 5th, wound in the trachea contracted to a mere fissure; ordered porter and to continue the quinine. Oct. 6th, wound in the wind-pipe nearly closed, he is rapidly gaining strength. October 6th, directed his parents to keep him in his room, omit the quinine, and continue the porter. He continued steadily improving in this way until the 18th, which found him entirely well.

Case 2d. April 8th, 1863. Samuel Palmer, æt. 12 years, patient of Drs. Merriman and Plympton, figure tall and slender, dark eyes and brown hair, of strumous habit. He had been suffering for four days with croup as a consequence of diphtheria. His skin was purple

and cool with slight moisture, pulse very feeble, but not much accelerated. He had a general emaciated appearance, with a hoarse, barking cough. Notwithstanding, I could not regard this case as one favorable for an operation, the parents as well as the little sufferer himself were anxious to have it done. Accordingly, with the concurrence of Drs. Merriman and Plympton, and with the assistance of Dr. R. D. Foot, having administered chloroform carefully I proceeded to make the incision as in the above case; but the operation was attended with much more hemorrhage than in the former one, owing partly perhaps to the increased turgescence of the veins covering the trachea, from long embarrassed respiration, or it may be to a slight difference in the anatomical distribution. There was no artery of importance injured. After the bleeding had subsided the incision was made in the trachea, and a large sized double canula was introduced. He felt immediately relieved from all symptoms of dyspnœa. He was put to bed, and for the first twelve hours was perhaps as comfortable as we could expect. Quinine in two grain doses was given every three hours with port wine and beef-tea, but all to no purpose; his pulse became more and more indistinct, and as he had not sufficient strength to expectorate, he expired thereby thirty-six hours after the operation.

ART. III.—*Statistical Results derived from 3,000 cases of Pregnancy and Child-birth at the Lying-in Hospital in Christiana.*—By DRS. F. C. FAYE, Professor and Head-Physician; and H. VOGT, Assistant Physician to the Hospital. Translated from the Norwegian by Dr. D. F. LINCOLN, of Boston.

POSITION OF THE FÆTUS.

In a total of 2,881 labors, in which the foetal position was carefully noted, the head presented :

In first position (forehead toward right side of pelvis) in 2,178 cases.

In second " " " left " " " in 588 "

Of the head presentation.

In first position, the head was born with forehead backwards in 2,143 cases.

" " " " " " " forwards " 35 "

" second " " " " " " backwards in 578 "

" " " " " " " forwards in 10 "

Vertex-presentations not further defined..... 24 "

Percentage, compared with whole number of cases.

Head born with forehead to the right, backwards 74.38 per cent.

" " " " " " forwards 1.21 " "

" " " " " left, backwards 20.06 " "

" " " " " " forwards 0.34 " "

Vertex-presentations not further defined..... 0.87 " "

As is seen from these observations, the proportion between the first and the second head-positions does not coincide with the common statement of 2 : 1, but is over 3 : 1. As to this we can only remark, that it may well be possible that in part of the cases the special position is less certainly made out, the diagnosis being made by less experienced members of the hospital-service; but we dare assert that the result is not very far from the true proportion, since it is in general easy to decide, by the child's head turning to one side

after passing the labia externa, whether the forehead is turned to the right or to the left side of the pelvis.

That that variety of second-position is the least frequent, which shows itself by the forehead's lying forward while the head is being born, appears from the proportion just given, and this agrees also with the general experience of the profession. That the primitive position, as a rule, is one with the forehead a little in advance, is the doctrine of Nægele, and agrees with our own experience—in opposition to the statements made by many English authors, according to which the head lies from the first with the forehead backward.

Face-presentations occurred 8 times; in 4 cases the chin was directed towards the right side of the pelvis (first face-presentation), while at its exit it was turned directly forwards; and likewise in 4 cases the chin was to the left (second face-presentation). Here, therefore, the ratio was not as 2 : 1, since both positions occurred with equal frequency.

The ratio to the whole number of births is 1 face-presentation to 360 = 0.28 per cent.

In the pelvic presentations were born 71 children = 2.46 per cent. Of these 44 turned the back forward (first position), 10 lay with the back backwards (second position), and of 17 nothing is stated. 41 were breech-presentations; 20 presentations of one or both feet; 1 of the knee and 2 of all the pelvic extremities (feet and breech at once). The mode of birth is not further specified.

The trunk-presentation (transverse) occurred 12 times = 0.42 per cent. Twin-births were 46; the fœtus presented as follows :—

Of 19 pair of twins both were born in head-presentations.

" 8 "	"	No. 1 presented head, No. 2 breech.
" 4 "	"	No. 1 " " No. 2 lay transversely; of the last, 2 were turned by the feet, one was born by spontaneous evolution, one (an anencephalous) was turned by the head.
" 6 "	"	No. 1 was born in breech-presentation, No. 2 in head-presentation.
" 5 "	"	both presented breech.
" 2 "	"	No. 1 presented one foot, No. 2 both feet and breech.
" 2 "	"	No. 1 { in breech-presentation. in breech-presentation with one foot.
		No. 2 { in breech-presentation with two feet. in breech-and-head-presentation, united.

From this it is seen that in nearly half (19) of the twin-births both children have presented the head, and in the other cases the first-born has presented the head 12 times, the second-born 7 times. Thus 57 children out of 46 pair of twins were born head first; 37 of them with forehead behind and to the right; 3 with forehead in front to the right; 16 with forehead behind to the left; and one in position not stated.

Triplet-birth has only occurred once since 1846, among a total of about 3500 births at the hospital. The children were all of the female sex.

In the above statements regarding position of the fœtus, no notice has been taken of those which have weighed under 5 lb., (5 lb. 8.2 oz. Av.) It has of old been a matter of experience, that small and immature fœtuses do not assume the different positions in the same ratio as larger children, and those born at full term.

We will therefore make a separate statement for children under 5 lb., ($5 \frac{1}{2}$ nearly.)

The number of such children was 202, of whom

138	or 68.3	per cent	presented the head.
46	or 22.8	" "	" the pelvis or trunk.
18	or 8.9	" "	are not stated in the journal.

This confirms the result of experience in regard to the relative frequency of pelvic and trunk presentations, since about $\frac{1}{3}$ * of the fœtus, whose position is given, were born in these presentations. The head-presentations make 68 per cent., instead of the 94 per cent. in cases of well-developed fœtus at full term.

SEX OF THE FŒTUS.

The sex is carefully noted for 2995 children, of whom 88 were twin-children, and 3 triplets.

The boys were $1505=50.3$ per cent., girls $1490=49.7$ per cent., giving a very slight excess of males, apparently dependent upon the fact that, upon the whole, a larger number of girls are born of loose women.

Of the 91 twin and triplet children, 39 were males, 52 females.

WEIGHT OF THE FŒTUS.

In order to compare the facts of weight and of sex, the sex is specially stated. The percentage is reckoned upon a total of 2677.

Weight (reduced to Avoirdupois).

lb. oz.	lb. oz.	MALES.	FEMALES.	MALES.	FEMALES.	
13 7		1				
11 0.5 to 11 2.7			2	0.7	0.3	= 1.0 per cent.
10 9.8 — 10 12		1	3			
9 14.8 — 10 7.6		17	4			
9 6 — 9 14.8		24	16	0.9	0.6	= 1.5 per cent.
8 13 — 9 6		88	47	3.3	1.7	= 5.0 "
8 4 — 8 13		175	102	6.5	3.8	= 10.3 "
7 11.5 — 8 4		303	235	11.3	8.7	= 20.0 "
7 2.7 — 7 11.5		231	259	8.6	9.7	= 18.3 "
6 9.9 — 7 2.7		272	354	10.1	13.2	= 23.3 "
6 1 — 6 9.9		93	136	3.5	5.1	= 8.6 "
5 8.2 — 6 1		78	90	2.9	3.3	= 6.2 "
4 15.4 — 5 8.2		19	31	0.7	1.6	= 2.3 "
4 6.6 — 4 15.4		23	25	0.9	0.9	= 1.8 "
Under 4 lb. 6.6 oz.		21	27	0.7	1.0	= 1.7 "
		1346	1331	50.1	49.9	= 100.0 "

* Exactly $\frac{1}{3}$. L.

The children under 4 lb. 6.6 oz. weighed from 6 oz. to 4 lb. 5.5 oz. and were mostly born prematurely.

The weight of twins varied considerably, but these differences cannot be said to stand in any definite and direct relation to the vital capacity.

The largest twin-children weighed respectively 6 lb. 9.9 oz. and 7 lb. 11.5 oz. The smallest weighed 2 lb. 3.3 oz. and under, and were born prematurely.

Among the weights given the tables show many variations from 6 lb. 9.9 or down to 3 lb. 5 oz. in living children, who throve well during their stay at the hospital.

The weight of the triplet-children was 4.19, 3.3 and 3.58 lb. respectively. All three were living, and took the breast.

By comparing the weight and sex, we have as a result:—

The heaviest child (13 lb. 7 oz.) was a male.

A weight of about		11	—	0.5 included	1 male,	5 females.
—	8	13.8	— 10	7.6	" 129	" 67
—	7	11.5	— 8	13	" 478	" 337
—	6	9.9	— 7	11.5	" 503	" 613
—	5	8.2	— 6	9.9	" 171	" 226
—	4	6.6	— 5	8.2	" 42	" 56

We see from this, that of children of 11 lb. weight a large excess was of the female sex. Among those between 7 lb. 11.5 oz. and 10 lb. 7.6 oz. the male sex preponderates, while among those between 6 lb. 9.9 oz. and 7 lb. 11.5 oz. the female sex takes the first rank. Between 5 lb. 8.2 oz. and 6 lb. 9.9 oz. the number of female children is also greater; and the same of the lowest series—4 lb. 6.6 to 5 lb. 8.2 oz.

Regarding the relative proportions between foetal size (weight and length), and maternal age and number of pregnancies, observations have been made by Hecker, in Munich, and Duncan,* in Edinburgh, from which it follows that the children first born are less in weight than children of subsequent pregnancies, to which Duncan adds that the greatest average weight of children occurs in women between 23½ and 27½ years old, in their three first pregnancies.

How far this relationship between the foetal weight and the number of pregnancies coincides with our notes, will be shown in the following table. It may be remarked, that children under 5 lb. 8.2 oz. and twins are not included in the table. †

It will be seen from this table, that the average weight of children of the first pregnancy is less than in the second pregnancy, in all the periods from under 20 years to 45 years. On the other hand, one woman over 45 years old bore a child in her first pregnancy which weighed 1.1 lb. more than children by the second pregnancy, and thus furnishes an exception. The total average weight of the children by the first pregnancy—7 lb. 3.5 oz., is also according to the table less than the average for the following ten pregnancies. The difference is however unimportant.

* Edinburgh Med. Journal No. 12, 1864. Zeitschrift für Geburtskunde No. 2, 1865.

† See page 123.

Ages.	NUMBER OF WOMEN CONFINED, AND AVERAGE WEIGHT OF THE CHILDREN (AVERAGED POIS).												Total Number	Average weight lb. oz.
	1st preg- nancy	2d	3d	4th	5th	6th	7th	8th	9th	11th	12th			
	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.			
Under 20 years	65 6 15.40	3 7 12.25	—	—	—	—	—	—	—	—	—	68	7 5.83	
20—25	641 7 3.94	146 7 5.72	15 7 7.66	3 7 0.87	—	—	—	—	—	—	—	805	7 4.55	
25—30	439 7 5.20	301 7 9.30	72 7 8.21	19 7 9.14	5 7 14.38	3 7 10.05	—	—	—	1 8 13.17	—	840	7 12.20	
30—35	145 7 4.91	141 7 9.98	66 7 3.82	28 7 10.77	12 7 15.47	01 8 5.88	3 8 1.66	3 7 10.05	—	—	—	408	7 11.81	
35—40	39 7 2.58	69 7 4.61	22 7 7.07	17 7 9.58	13 7 9.06	18 7 11.45	8 7 7.52	4 7 4.91	5 7 9.	1 5 8.23	2 8 13.17	198	7 6.47	
40—45	6 6 13.19	6 7 10.79	8 7 15.45	4 7 2.98	4 7 15.39	9 7 9.44	6 7 10.05	7 7 15.22	3 7 9.69	—	3 7 10.42	54	7 9.66	
Over 45	1 7 11.52	2 6 9.88	—	4 7 4.35	2 8 4.34	1 7 0.50	—	1 6 1.05	—	2 7 13.72	—	13	7 4.20	
Total women confined	1334	668	183	75	36	41	17	15	8	4	5	2386		
Average weight of children	7 3.53	7 6.65	7 8.44	7 6.28	7 14.93	7 10.66	7 11.74	7 3.81	7 9.34	7 6.38	8 3.79			

7 lb. 9.8 oz.

7 lb. 9.8 oz.

The table shows further, that children by the 11th and 5th pregnancies have the greatest average weight; but here we must remark, that this result has only a very small number of observations (36 and 5 respectively) to base upon.

With regard to the relation between the mother's age and the children's weight, it appears from the table that women between 25 and 30, and 30-35 years have borne the largest children; next come the classes 40-45 and 35-40 years, and after these, women under 20 years. Women from 20-25 and over 45 have borne the lightest children according to the table. The irregularity of these results makes it probable that they do not give expression to a constant result. The number of observations is very certainly too small to justify us in drawing from them proportions which shall have the force of rules,* but at any rate, the data hitherto published will all be of use as contributions towards future investigations in the same direction.

LENGTH OF THE FŒTUS.

There is no statement made concerning 288 of the whole number. The length of the child's body is measured by stretching out the legs and taking as exactly as possible the distance from vertex to heel. We may remark that the English inch was used in measuring for many years at the hospital. This fact escaped our observation until recently, and we therefore preferred not to change to the Norwegian scale, as we now have

* Hecker bases his statements upon 1,096 careful observations of children born of the same women in different pregnancies. Duncan's conclusions rest upon averages drawn from observation of 1,011 children of primiparæ, and 1,042 of multiparæ.

a uniform measure, which can easily be reduced. The result is as follows:—

24½	inches long,	1 child.	19½ 19½	inches long,	99 children.
24	"	4 children.	19	"	366 "
23½ 23½	"	4 "	18½ 18½	"	49 "
23	"	26 "	18	"	258 "
22½ 22½	"	18 "	17½	"	15 "
22	"	242 "	17	"	71 "
21½ 21½	"	84 "	16½	"	5 "
21	"	594 "	16	"	20 "
20½ 20½	"	123 "	"	"	33 " of
20	"	654 "	whom the smallest was 9 in. long; many of these were prematurely born.		

The average length of 2,633 children, not counting twins, triplets, or children less than 16 inches long, is 20.03 inches.

The longest child (24½ in.) weighed 9 lb. 14.8 oz.

Of the children from 23 to 24 in. inclusive, 34 in number, the smallest had the weight of 7 lb. 11½ oz., the largest 11 lb.

Children from 22 to 23 in. numbered 260, the largest of whom weighed 11 lb. 2½ oz., the smallest 8 lb. 2 oz.

Children from 21 to 22 in. long numbered 678

" " 20 " 21 " " 777

Therefore over half of the total number of children were born of a length between 20 and 21½ inches.

Children from 19 to 20 in. long numbered 465

" " 18 " 19 " " 307

making together about a third part of the total.

Twin-children, 80 in number, were measured with the following result:—

1	child was 22 in.	5	were 21 in.
3	children were from 20½ to 20¾	9	" 20 "
3	" " 19½ to 19¾	11	" 19 "
14	" " 18 to 18½	5	" from 17½ to 17¾
8	" " 17	10	" " 16 to 16½
5	" " 15 to 15½	2	" " 13 to 13½
4	" " 12		

The average length according to this is 17.8 inches, therefore 2 in. less than the average length of children born singly.

The length of the triplet-children was 16.16 and 17 inches.

As above observed, all the measures are taken with the English scale, upon which the inch is a little smaller than the Norwegian. Thus 27 in. English answers exactly to 26 in. Norwegian, and accordingly the average length, above stated, of children born singly = 20.03 is a little over 19.3 in. Norwegian or 53 centimètres.

ART. I.—*The Practice of Laryngoscopy and Rhinoscopy.*—

By ANTOINE RUPPNER, M.D., New York.

SECTION II.

(CONTINUED FROM PAGE 49.)

DIRECT LARYNGOSCOPIC EXAMINATIONS.

HAVING already considered laryngoscopic examinations by direct sunlight, both with and without reflection, let the room be sufficiently darkened, by drawing down the curtains, and the examination be made by artificial light, for which purpose we shall employ To-bold's instrument.

The following progressive steps will claim our attention.

1st. *Position of patient, physician, and arrangement of the apparatus.*—When artificial light is employed, it is stationed to the right, and somewhat in front of the

patient ; the centre of the flame being in direct line with the mouth, in order that the rays of light from the reflector may fall in a horizontal line directly over the back of the tongue, upon the laryngeal mirror, held against the palate by the operator. In order, moreover, that the light may fall exactly into the median line, the face of the patient must be turned slightly to the right. The examining physician, with his legs in proximity and outside those of his patient, sits close in front, his eyes in a line of equal height with the upper lips of the former. Then approaching the border of the reflector, he looks into the throat of the patient ; when, in order to inspect more critically particular positions of the cavity of the larynx, he bends his head to the side, and makes the examination through the central perforation in the reflector. Intensity of light is thereby gained.

Some laryngoscopists use the centrum seldom, others constantly and exclusively. It is a matter of practice and habit only.

2d. *Position of the head and tongue of the patient.*—The position of the head is important. Bent somewhat backwards, the lower border of the upper lip ought to be in a line with the insertion of the velum palati. Most patients will readily hold the head as directed when it is explained to them, and when they are assured that they are not going to be hurt. Nevertheless, at the first attempt, (sometimes oftener), to introduce the laryngeal mirror into the mouth, they involuntarily recede, sometimes quite violently, and a second trial has to be made.

To remedy this evil, a head-rest, an arrangement like that attached to photographers chairs, has been adopted by some; an admirable contrivance when operations are to be performed within the throat. Except for operations and exceptional cases it will be found, that the physician's left hand supporting tongue and chin, and a little patience on both sides, will suffice to accomplish the object.

The head in proper position, let the patient open the mouth and protrude the tongue as far as possible; then take a towel or soft handkerchief, held in readiness for the purpose, dry the protruded tongue, lay the cloth on it, place the index finger of the left hand over and across it, and the thumb under it, hold and draw it firmly yet gently over the underlip so as to depress the root of it, whilst the mirror is introduced into the throat. If the patient is fretful and moves the head, let the operator hold the tongue as described; otherwise it is best to let the former go through this manoeuvre, as it gives confidence, occupies the mind, and last, but not least, leaves the physician's left hand free. We very rarely assist the patient, and then only at the first examination. A few individuals possess sufficient control over the tongue to hold it down by a voluntary effort, while the laryngoscopic examination is made. Sometimes this power is acquired after considerable practice.

A metallic tongue depressor may be used where the tongue shows great resistance; it may be depressed with one or two fingers of the operator's left hand. We have, however, invariably found that any attempt to

depress the tongue is usually less successful than its gentle and steady traction forward, for the reason that when it is depressed in front with force, it is also at the same time pushed backward at the base, and upwards too, touching nearly the back of the pharynx. Sometimes it arches upwards so as to touch the roof of the mouth. The result is, that the passage of light into the larynx is obstructed, brings the tongue in contact with the laryngeal mirror, and thus excites nausea. To depress the tongue with finger or instrument should therefore be avoided.

3d. *Manner of holding, introduction, position, and changes of the laryngeal mirror.**—When the patient and the operator have taken the requisite positions, the apparatus for illumination properly adjusted, the patient's head placed rightly, the tongue protruded and fixed, the physician takes hold of the mirror, which, before being introduced, is first to be warmed by holding it over a lamp or by dipping it into warm water, (of 50° or 60° R., for, if the water is too hot, the silver coating of the glass mirror is easily spoiled, and the mirror rendered useless†); so that the patient's breath may not dim it. Its temperature should, however, every time be carefully tested by the operator, by bringing it in contact with the cheek or the hand, for the reasons,

* The laryngeal mirror has already been described at length.

† The use of warm water has also another advantage, viz., if the mirror is bespattered by sputa, blood, etc., during examination, it can at once be washed, cleansed and warmed again in one and the same process, instead of washing it first in cold water, drying it, and then lastly warming it again over a lamp.

that an over-heated mirror will burn the patient's mouth and spoil the silvering.

The mirror is to be held like a pen (see figure) resting between the thumb and side of the first phalanx of the middle finger, so that by simple pressure of the thumb upon the handle, the mirror can be rotated as little or as much as desired. The index finger does not come into requisition.

FIGURE 7.



POSITION OF THE HAND AND MIRROR.

The hand should be held naturally, easy, not stiffly bent backwards. This requires patient practice. Held thus, it is introduced so as to slightly raise the uvula and soft palate. Take care, lest the uvula project below the mirror, and its image being reflected in the glass it thus obscures the view of the larynx. Avoid touching the tongue, and particularly the back of the pharynx with the mirror, these being the most sensitive parts within the mouth.

In exceptional cases the pharynx bears the touch of the mirror as well as the uvula and soft palate. By resting the third and fourth finger upon the chin of the patient, the hand of the operator may be kept steady, and assist him much to carry his mirror undisturbed over the tongue to its destination. At the same time, the stem of the mirror must be pressed into the angle of the mouth, whereby the mirror, held somewhat obliquely, passes exactly along the median line, and receives additional support.* Having avoided the back of the tongue and the pharynx, and placed the mirror in an oblique position below the soft palate, with the uvula at its back, we at once obtain a view of the larynx, at the same time the patient—as instructed beforehand—is to breathe gently, short and regularly, as if he were moderately out of breath. Practice enables us readily to make such changes in the position of the mirror (by slight rotation executed by the thumb), or of the patient, or in the direction of the light, as may be required, to bring the parts fully in view.

* For the benefit of beginners, to train the hand and eye, Dr. Tobold has introduced a phantom in the shape of a prepared skull fastened to a portable stand with slide and screw, into which is introduced a plaster of Paris cast of the larynx and trachea, with the tongue protruding, truthfully painted, and admirably adapted for the first practice of the art. A second phantom represents the head with open mouth and protruding tongue, into the neck of which is also introduced a larynx, for the purpose of studying the same inside, and gaining the requisite dexterity with the mirror before experimenting on individuals. In our demonstrations before pupils these phantoms are constantly used, and they are found of great advantage. The use of the above mentioned phantoms can, however, be dispensed with by procuring a human tongue and larynx with the upper part of the œsophagus, and placing or arranging them in a skull with the lower jaw attached. This can readily be done upon a table, the skull being supported on a few books, or if the above is wanting the head and neck of a sheep will answer the same purpose.

It must be remembered, that the picture of the larynx as it appears in the mirror, is reversed, so that we get the same view as we do when examining the larynx after death. We look at it from behind. The epiglottis is seen first (it shall engage our attention by and by); the arytenoid cartilages appear nearest to the eye; the insertion of the vocal cords into the thyroid cartilage is more distant. The anterior wall of the trachea is seen as if we were looking into the tube from behind. To the uninitiated, this reversed picture is, of course, at first troublesome, as everything, so to speak, has changed position. This delusion will soon, however, cease to annoy him, if he constantly remembers, that the parts are on the same side of the observer on which the image appears. What, therefore, is copied to the left of the observer in the mirror picture, is in reality also to his left. Likewise, as the right eye of the patient so also the right half of the larynx is to the left of the observer, and so also appears the right half of the larynx in the mirror to the left of the observer.*

Figure 8, taken from Prof. Türck's Clinic, represents the larynx as the parts are seen in their natural position; figure 9 represents the parts as represented in the laryngeal mirror during examination.

* Türck's Clinic, 1866.

FIG. 8.

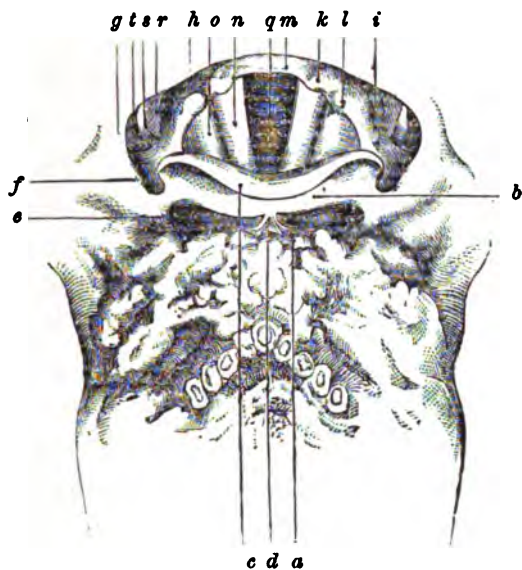


FIG. 9.

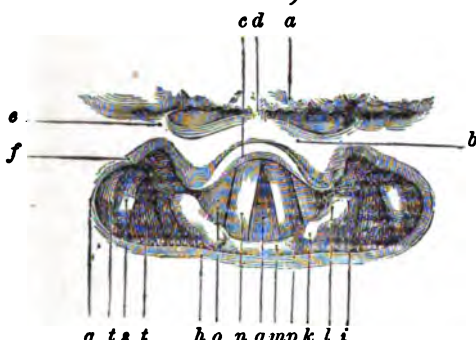


Fig. 8 & 9. (a) Root of the tongue; (b) Anterior surface of the epiglottis; (c) Its everted border; (d) ligam-glossæpiglottic med. with the well known valliculæ (Tourtual) on both sides; (e) Right lateral glossæpiglottic ligament; (f) Right large cornu of the hyoid bone; (g) Right wall of the pharynx; (h) Posterior wall of the pharynx; (i) Left arytenoid cartilage; (k) The cartilage of Santorini; (l) Cartilage of Wrisberg; (m) Upper extremity of the posterior wall of the larynx, (musc-transversi); (n) Right true; (o) Right false vocal cord; (p) Opening of the left ventricle of Morgagni; (q) Glottis, at its anterior extremity the anterior wall of the larynx; (r) Right thyroid cartilage, which with the folds of mucous membrane above (s t) represents the outer wall of the sinus pyriformis, extending into the outer wall of the pharynx the inner wall of which is formed by the arytenoid cartilage and the ligament aryteno-epig'otticum.

To simplify description, Dr. Gibb (on the Throat and Windpipe, page 452, sec. editn.,) gives the following order of the parts as seen when looking into the throat with the mirror :

1. The back of the tongue.
2. The valleculæ, or fossæ at its base.
3. The epiglottis.
4. Posterior part of the cricoid cartilage, with its mucous membrane.
5. Larynx.
6. The arytenoid cartilages, with their apices, the cartilages of Santorini.
7. The aryteno-epiglottic folds, or ligaments, with the cartilages of Wrisberg in the negro.
8. Vestibule of the glottis.
9. Superior thyro-arytenoid ligaments or false vocal cords.
10. Ventricles of Morgani.
11. The true vocal cords, or glottis.

Beyond the trachea sometimes the bifurcation of the same is distinctly seen.

When the patient makes a deep inspiration, the glottis, which during common or regular respiration is only partially open, is then a wide triangular opening of considerable size, and the vocal cords appear on each side of a pearly white color. If again the patient is requested to pronounce the German diphthong "æ," the glottis closes, whilst the vocal cords approach one another closely, and vibrate with the impulse of the expired air.

Often experiments can be carried very far in this

direction. We have succeeded with patients, particularly singers, to such an extent—after a positive tolerance has been established—as to make them sing (of course without pronouncing the words), short melodies, during the progress of which the opening and closing of the glottis, the variable tension of the cords, and the action which the remaining component parts of the larynx took therein was most beautifully exhibited.

It is equally important to practice the introduction of the laryngeal mirror with the *left* hand as well as with the right. The operator, holding the mirror in his left hand to gain a view of the larynx,—the patient manipulating his own tongue,—can use his right hand for the introduction of brush or other instrument in situ, and thus make his applications with discrimination.

4th. *Obstacles encountered in laryngoscopic examination.*—It remains yet to speak of the *obstacles encountered and to be overcome* in the introduction of the laryngeal mirror, and during its necessary retention, in the throat.

It is rather singular that those unpleasant sensations, cough, retching, and dyspnœa, which we should expect to follow the instant introduction and contact of the mirror, are very seldom encountered. Among the very large number of cases that we have examined for several years we remember but nine—four of retching and five of cough—that obliged us to give up every further attempt for the time. Other laryngoscopists speak equally of the rare occurrence of these symptoms. Others more formidable, we meet often, and have to devise means to overcome them :

(a.) *The Tongue*, reference to which has already been made, page 128 et seq. Some persons find it impossible to hold the tongue out any length of time. As soon as an attempt is made to introduce the mirror or any other instrument, up it rises to the roof of the mouth and remains there with wonderful pertinacity. Again, some have more than their just proportion of that unruly member, and even when firmly pulled over the under lip, the arch formed is so high as to render it almost impossible to laryngoscope. Such subjects are generally quite nervous too, *patience* becomes, therefore, *the golden rule* with these. The expectant mode of treatment, so popular with some *confrères*, answers well for a couple of days, but then the attempt must be renewed, and repeated till all nervousness is more or less overcome, and the tongue under control. I am in the habit, as also recommended by Dr. Watson, of directing irritable patients to practice by sitting in front of a looking glass with the mouth open, for the purpose of acquiring the habit of controlling the movements of the tongue whilst inspecting it. It is of great assistance at times.

(b) *The Epiglottis*, which, next to the tongue, presents many obstacles to the successful examination of the larynx, varies much in appearance in different individuals. It may be large or small, broad or narrow long or short. Its free border often projects obliquely downwards and backwards, rendering it sometimes impossible to throw the light beneath it. Sometimes its arch is contracted, sometimes one half literally folded over the other half; at other times depressed (ap-

proaching each to the centre) resembling a bonnet tied with ribbons under the chin. In fact, the greatest variation exists.

FIG. 10.

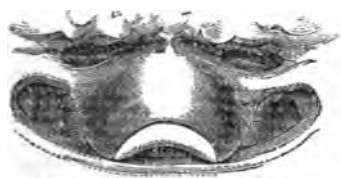


FIG. 11.



FIG. 12.



FIG. 13.



Fig. 10 Represents the Epiglottis bent backwards, depressed.

Fig. 11. Omega-shaped Epiglottis, laterally contracted.

Fig 12. The border of the Epiglottis depressed and rolled backwards.

Fig. 13. Epiglottis depressed, but partially raised so as to show the arytenoid cartilages with those of Santorini and Wrisberg, and part of the vocal cords.*

The tubercle of the epiglottis, reaching into the larynx at the anterior junction of the true vocal cords interferes with the sight of that part, even when the epiglottis is in its usual straight position.

The correct position of the head and tongue goes far

* Copied from Türk's Clinics.

towards remedying any deviation in the position of the epiglottis. In many cases success is insured when after the laryngeal mirror is introduced, the patient is requested to pronounce the diphthong "æ" several times in succession, each time striking a higher pitch, for instance, the first, third, fifth and eighth note of the scale, when at each successive change of the pitch of the voice, the epiglottis rises step by step, is straightened often at the same time at the base, so that, at a glance, the entire surface of the glottis from the anterior angle to the base can be inspected. With other patients, pronouncing the letter "e" secures the object, whilst again in another class we have to resort to repeated forcible and abrupt inspirations. For exceptional cases means have been devised by Von Brüns and others, to raise the epiglottis, by advocating the use of the epiglottic pincette, or a covered epiglottic hook, which, though extremely rarely required, can be applied without suffering, and renders good service at times.

DR. GIBB, of London, presented a paper before the British Association for the Advancement of Science, at a meeting at Cambridge in 1862, and at Newcastle in 1863,* wherein he disproved the hitherto received opinion, that the epiglottis is naturally in the correct or vertical position, but on the contrary demonstrated, that in *eleven per cent.* of mankind it was found to be oblique, very much or semi-pendent, or nearly quite

* Archives of Medicine for 1863 and 1864, and various journals and papers.

horizontal in persons apparently healthy. His arguments were founded upon an examination, with the laryngoscope, of six hundred and eighty healthy persons, up to September 1863.

By the last census the population of Great Britain was determined to be 28,887,519; eleven per cent. gives the number of 3,177,627 persons who have not a vertical or erect epiglottis. "Can it be wondered at," the author asks, "that diseases of the throat are very prevalent among mankind, when the key-stone to the respiratory arch is shifted in its position?"

It is probable in some countries, those within the tropics for example, the percentage might be even more than has been found to prevail in England."* It would be both useful and interesting, if we possessed some statistics in the United States, in reference to the above fact, particularly in regard to the New England States, where pulmonary and throat diseases are very prevalent

Semelder† states, that in about 25 per cent. of adults he got a perfect view of the larynx easily at the first examination; in about 5 per cent. it was impossible to see the larynx at all; in the remainder he succeeded more or less completely after repeated examinations. This percentage is too large, as, according to Gibb, the epiglottis deviates from its true position in only 11 per cent., which must interfere with the examination. Add to this 5 per cent. more for other causes, and we then have only a total of 16 per cent.

* Gibb. Throat and Windpipe, pages 53 and 54.

† Dr. S. Semelder. Vienna, 1863.

It is safe to assert, that in three-quarters of all the patients I have examined, and they number hundreds, I have been able to obtain a good view of the larynx. This estimate does not include children below six years of age.

(c.) *Great sensitiveness and excitability of the fauces*, at the touch of the mirror during examination is a further obstacle, as it excites contraction of the pharynx and retching. In some patients this is natural and unavoidable, in the majority however it is owing to a congested state of the mucous membrane of the fauces. Hence, when a throat appears at first sight red and engorged, difficulty may be anticipated in the examination of the larynx. Special care must be taken by the operator to avoid any unnecessary increase of that already troublesome excitability.

After eating or drinking, this is always increased, therefore irritable persons ought to be examined either fasting, or a few hours after breakfast. Again, an increase of sensitiveness is noticeable during the continuance of catarrhal affections of the upper portions of the respiratory and digestive organs, in the same individual in different degrees at different times of the day, according to the general feeling, especially in nervous individuals, so that, when the examination has been made successfully one day, it has to be abandoned the following, for the above reasons. Various modes have been suggested for lessening the sensibility of the throat in such cases. One is, to direct the patient to take a piece of *ice* into the mouth and let it dissolve before examination. This works well.

Bromide of Potassium, either swallowed or used as a gargle—a solution of *Morphine* in *chloroform*, *hydrochloric æther* and *tannin* have all been tried. Of these last mentioned, a solution of 16, 20, 30 grains to the ounce of distilled water, and administered through a pulverisateur (such as Lewin's) has rendered the best service, whilst the bromide has disappointed expectations. *Morphine* with *chloroform* is exceedingly painful when applied to irritable membranes, and lastly, *hydrochloric æther* in diminishing the great sensitiveness causes burning and produces an irresistible desire to cough. A more successful way is to put 10 to 20 drops of *chloroform* on a handkerchief, and let the patient inhale it for a minute. I find it quiets the most irritable throats. The number of drops used is too small to render the patient drowsy. Yet none of these appliances are so effective as the repeated introduction of the faucial mirror at intervals of a day or two.

(d.) *Hypertrophy of the Tonsils* may render the examination of the larynx difficult or impossible. In proportion to this enlargement, the mirror must *be* adapted to the examination. When the tonsils are, however, so much enlarged as to touch each other, laryngoscopic examination is impracticable. They ought first to be removed by the guillotine or by the application of Vienna paste.

(e.) *Irregularity of Respiration* must finally be mentioned as one of the causes upon which failure of laryngoscopic examination sometimes depends. Most patients think, that after the head and tongue are fixed, it is also necessary for them to retain as long as possi-

ble their breath, instead of breathing quietly and regularly without exertion. Nothing but a careful explanation of the respective steps to be gone through with, on the part of the operator, can insure success; whilst at the same time it will be found that patients laboring under serious diseases—such as are attended with suffering—bear the examination better than those who have but trifling ailments or none at all.

SECTION III.

AUTO-LARYNGOSCOPY.

To enable us to judge of the sensations of others when examined—to acquire skill and confidence in our manipulations of the larynx,—and for the purpose of gratifying our patients and our curiosity, *Auto-Laryngoscopy* ought to be practised by every one who wishes to be proficient in this art. The methods of examination are various.

García's, the father of auto-laryngoscopy, is very simple. Turning his back towards the sun, he received the solar rays by means of a small mirror held before the face, and directed them upon the laryngeal mirror placed against the uvula, which reflected again the image into the other mirror.

Moura Bourouillion's laryngoscope is available for these examinations, though little used.

Dr. G. Johnson proposed the following simple and satisfactory plan: "Sitting at a table of a convenient

“height,” he says, “I can place a looking-glass at a distance of about eighteen inches in front of me, and a moderator lamp on one side of the glass, but two or three inches further back, so that the light may not pass directly from the lamp to the mirror. Now, with the reflector on my forehead, I direct the light as it were into the open mouth of my own image in the looking-glass; then, introducing the laryngeal mirror into my mouth, I see the reflection of my larynx and trachea in the glass before me, and any one looking over my head can see the image at the same time. By this method the experimenter can see his own larynx and show it to others.” We have tried the above method and found it as successful as it is simple, so that it can be carried out with facility by beginners. Omitting to speak of several other apparatuses for Auto-laryngoscopy, we shall only refer to Prof. Germak’s, as by its use in his own hands the art has become, so to speak, naturalized in every foreign land. It consists of a mahogany box, at the bottom of which is a sliding panel, to which is screwed a brass tube, which permits of the attachment of a large illuminating concave perforated reflector, at any height most suitable. Opposite to this is a receptacle for another tube, which latter receives the stem of an oblong mirror, attached by means of a hinge. The light is placed to one side of the experimenter, and throws its rays into the large mirror, which reflects him in the laryngeal mirror held against the uvula in the right hand. The observer looks through the perforation, or around the margin of the large mirror, whilst the experimenter looks into

the oblong mirror; both see the laryngoscopic image in the laryngeal mirror, although not precisely alike to each, as their visual axes do not form the same angles with the reflecting surface of the mirror. From the position of the lamp the eyes are completely protected from the glare.*

This apparatus has this advantage, that a large party of persons can see the laryngoscopic image by clustering around the reflecting mirror, and at the same time others, by looking into the oblong mirror, will see nearly the same object. For general convenience, handiness of arrangement, regulation of light, elegance, and simplicity, this apparatus is to be recommended as preferable to any other, at a cost which places it within reach of all.

For lecturers on physiology, Germak's Auto-laryngoscope is most indispensable, and should have the preference over every other instrument. Such is the language of commendation of Dr. Gibb, one most able to judge in such matters.

* Gibb on the Throat and Windpipe, p. 458 et seq, Sect. Auto-Laryngoscopy.
Medical Times and Gazette, Feb. 14, 1863, p. 157.

SECTION IV.

RECIPRO-LARYNGOSCOPY.

THIS, the art of demonstrating a patient's larynx to others, was first pointed out by Dr. Smyly, of Dublin.* He has contrived to overcome the difficulty of showing the larynx to a third person in the ordinary way. To quote his own words: "In the ordinary method, when the examiner has a full view of the vocal cords of the examinee, he calls upon his colleague to view the parts, who when he places his head beside that of the examiner, only gets a partial view—a portion of the epiglottis, one arytenoid, and perhaps a vocal cord. In endeavoring to see more he pushes the examiner's head, so as to displace the light, or shakes his hand, so as to bring on nausea. Many other inconveniences, which I shall not here allude to, will occur to the mind of the practical laryngoscopist.

"My addition consists of a simple square piece of very good plate-glass mirror, set in brass, like the ordinary concave mirror. A second split tube is soldered on close to the first tube, which exists on all Weiss' frontal bands,† and a brass rod, the ends of which are bent in opposite directions, at an angle of 45°.

* Dublin Quarterly Journal, Vol. XXXVI., Aug. 1863.

† Also to be had at Otto & Reynders', Chatham street, New York.

“The mode of using this glass is as follows: The laryngoscope is fixed, as usual, before either the left or right eye. The brass rod is fixed in the tube, beside that which holds the rod supporting the reflector, and my square glass is fixed on the other end, as is very well shown in the engraving.

FIG. 14.



Dr. Smyly's Recipro-Laryngoscope.

“As the angles of incidence and reflection are equal, the mirror may be turned to such an angle that the second examiner may be placed at such a distance from both the patient and operator, that his presence cannot disturb the steadiness of either. The view the second examiner has of the larynx in the square mirror is not inverted, being twice reflected. The right vocal cord of the examinee is to the right-hand side of examiner number two.

"The glass employed in the manufacture must be as perfect and parallel as possible, so that the loss of light may be a minimum.

"In conclusion, I may add that the additional weight of the square glass, when made in an artistic manner, is scarcely perceptible."—*Dublin Quarterly Journal*, Vol. XXXVI., Aug. 1863.

Reviews and Bibliographical Notices.

ART. I.—*A Treatise on Emotional Disorders of the Sympathetic System of Nerves.* By WILLIAM MURRAY, M. D., M. R. C. P., London, &c. New York: A. Simpson & Co. 8vo. pp. 95.

THIS little work is divided into two portions, of which the first treats of the physiological effects of emotion upon the functions of the body, while the second is devoted to the pathology of emotion in its various phases, with an attempt to develop an outline of its treatment. The author especially guards his readers against the idea that a complete review of so difficult a subject has been attempted, and states in his preface he has merely sought to establish "the relation which exists between the emotions and the viscera, through the sympathetic system of nerves."

Even with this limitation he has marked out a wide and fertile field of inquiry, and it is extremely to be regretted that a larger amount of material and intelligent labor have not been brought to its investigation. The influence of the appetites and emotions in the causation of disease, is not, perhaps, yet fully appreciated; but in such an effort full advantage should, at least, be taken of medical physiology and the physiology of the nervous system. That these have been practically

ignored, is the weak point of Dr. Murray's book ; yet it is in other respects clearly a step in the right direction. It is suggestive of a line of investigation hitherto unattempted, and its chief value will be found in indicating the manner in which a large class of obscure affections may be studied with advantage.

After giving a brief and rather unsatisfactory outline of the treatment of emotional diseases, the author concludes with the following summary :

"I. The emotions injure the body most commonly by their effects upon the viscera, through the sympathetic system of nerves."

"II. There are disordered states of the viscera which powerfully induce those emotions which are injurious to the body ; these effects are produced through simultaneous disorders of the nervous system."

It is scarcely necessary to add that Messrs. Simpson & Co., the American publishers, have issued the book in a highly creditable and attractive style.

ART. II.—*Synopsis of the Course of Lectures on Materia Medica and Pharmacy, delivered in the University of Pennsylvania, with five Lectures on the modus operandi of Medicines.* By JOSEPH CARSON, M. D. Fourth edition, revised. Philadelphia: Henry C. Lea, 1867. 8vo. pp. 272.

THIS syllabus of Prof. Carson's lectures has been prepared with special reference to the wants of the students in the University of Pennsylvania, to whom his own lectures are delivered, and to whom he very appropriately dedicates the book. For them it must be an especially valuable aid in pursuing their studies, but other students may take advantage of it and make it of service to themselves.

It is not, as might be supposed from the title, an abstract of the course of lectures, but merely, as it were, an extended index of the same, which it is intended the student shall fill out at his leisure by perusal of the

systematic treatises on this subject. These works are generally so extensive in their range, that during the lecture session little time is found for the study necessary for the complete mastery of the subject, but the framework here presented will guide the student in his studies, and be to him a remembrancer of his instruction. The idea is a good one, and might be followed with advantage in all our larger colleges, for rarely is a course of lectures given that follows any one text-book. The five lectures on the action of medicine are given at length, and are a very condensed and yet complete summary of the existing state of knowledge on the subject.

ART. III.—*Injuries of the Eye, Orbit and Eyelids; their immediate and remote Effects.* By GEORGE LAWSON, F. R. C. S., England, Assistant Surgeon to the Royal London Ophthalmic Hospital, etc.; with numerous illustrations. Philadelphia: Henry C. Lea, 1867. 8vo. pp. 408.

THIS very admirable volume is among the first especially devoted to injuries of the eye and its appendages. It therefore fills a place in ophthalmic literature, which has, we think, been too long unoccupied. Mr. Lawson writes with the quiet confidence of one who understands his subject, and gives ample evidence that he has had large experience in the management of traumatic affections of the visual organs. The book is therefore thoroughly practical, and the didactic portion is well illustrated with numerous and apposite cases. Many wood-cuts, well drawn and engraved, add to the attractiveness of a volume which we are very sure will be extensively referred to as authority and a guide. Mr. Lawson gives a series of test-types, corresponding to the *schrift-scaden* of Jaeger, and has added a size intermediate between the No. 14 and 15 of this author.

The American publisher has done his part of the work in a very creditable manner.

ART. IV.—*Modern Inquiries ; Classical, Professional and Miscellaneous.* By JACOB BIGELOW, M. D., late President of the American Academy of Arts and Sciences, and late a Professor in Harvard College. Boston : Little, Brown & Co., 1867. 8vo. pp. 375.

DR. BIGELOW is well known to our readers as the author of several medical monographs in which, following the lead of Sir John Forbes, and in opposition to the then generally accepted views of the profession, he boldly advocated what he termed "rational medicine," or the expectant method of treating disease. This departure from the orthodox belief in the entity of disease, and the universal confidence in the efficacy of drugs, very naturally excited much opposition and many unkind comments. But the venerable author has lived long enough to see his views very generally adopted by the profession of the present generation, and he has his reward in the satisfaction of knowing that his teachings, although in advance of their age, have been truthful guides to scholars both in and out of the profession. And now near the close of a long and well-spent life, he brings together in a more permanent form, these and other essays, whose only bond of common resemblance he claims is their departure from the generally accepted views at the time of their publication. By reason of this they are all the more valuable, since time has now substantiated their correctness.

Rather more than one-half of the volume is taken up with essays exclusively medical in their character, and with which our readers are undoubtedly familiar. The remainder, with the exception of a few pages, is devoted to subjects that intimately concern and interest all scientific or literary students. We would especially commend the essay on "Classical and Utilitarian Studies," as worthy of careful perusal and thought. It is a reflex of the most enlightened opinion of the day, and emanating as it does from the oldest centre of classical

education in the country, must be somewhat startling to the venerable worthies of that section whose ideas of perfection centre around and are synonymous with a thorough acquaintance with classic lore superadded to a practical familiarity with the amenities of life as manifested at the "Hub." But this style of perfection and education is not what the world now requires, and the men who are now leading the world in its progress of civilization, and are controlling the intellect and thought of the masses of the people, are investigators in the natural sciences. The culture demanded by modern life, subordinates classical learning to the more liberal sciences, but would not displace it, and our great danger is that the reaction which is now going on against that method of education which for centuries has controlled the world, may be carried to too great an extreme, and we may lose sight of the value and aid of classical studies.

Here, as in his other essays, Dr. B. shows himself a ripe scholar and a liberal thinker, and he has weighed most happily the arguments on both sides the question, but has boldly taken his own position in favor of the utilitarian studies.

The volume is a most charming and valuable addition to our current literature, and we bespeak for it that cordial reception to which its merits certainly give it a claim.

ART. V.—*The Practice of Medicine and Surgery applied to the Diseases and Accidents incident to Women.* By WM. N. BYFORD, A. M., M. D., &c. Second edition enlarged. Philadelphia: Lindsay & Blakiston, 1867. 8vo. pp. 616.

In the JOURNAL for December, 1865, the first edition of this work received a lengthy review, in which, after most heartily commending the book, a running commentary was made on those portions which seemed deficient in the best clinical recommendations of the

authoritative teachers on these subjects. Many of the suggestions there made we are pleased to see incorporated in this edition; and while in the main the book is unchanged, the improvements now introduced very materially enhance its value, and make it, as the author "ventures to hope," "more worthy of the patronage of his professional friends than the first" edition.

In Chap. I., while Dr. Byford still follows and approves of Mr. Baker Brown's method of the treatment of rupture of the perinæum, he has added without comment, a full description of Emmet's operation, taken from the columns of this journal (Dec., 1865). The chapter on Ovarian Tumors, and their treatment, is by no means a fair exposition of the best views of the profession on this subject, in which it is true there is still much difference of opinion; but why the most recent publications are overlooked, and why statistics are introduced that are entirely out of date, and why opinions that have given place to better views, should be adopted and laid before the student as reliable teachings, we are at a loss to perceive. This is a progressive age, and a very brief experience may suffice to materially yet honestly alter one's opinions—of which the history of medicine affords many instances—and notably on this very subject of the treatment of ovarian tumors. Spencer Wells, Clay, Keith, Peaslee and Atlee, are entitled to some consideration—yet Dr. Byford quietly ignores them and their views. All this is the more remarkable from the fact that in treating of "dysmenorrhœa" "tumors of the uterus," "hypertrophy of the cervix," and other subjects, Dr. B. shows that he has kept quite abreast with the recent advances in the pathology and therapeutics of these parts of his study, and has drawn valuable material from the very latest publications.

With this reservation—to which we might add other qualifications on some more unimportant points—we would repeat the commendations which the book received in its original form, and would renew our belief

that it cannot fail to exert a material influence on clinical practice throughout the country. We think it due to the publishers to state that the typographical execution of the book has been performed in the most admirable and creditable manner.

Reports on the Progress of Medicine.

MATERIA MEDICA AND THERAPEUTICS.

By B. W. MCCREADY, M.D., Professor of Materia Medica and Therapeutics in the Bellevue Hospital Medical College.

ART. I.—*On the Influence of Veratria on the Circulation.*

DR. L. HIRT, of Breslau, has endeavored to learn, by experiment, in what manner veratria produces its effect in slowing the circulation. Previously, Praag had arrived at the following conclusions from his experiments:

1st. Poisoning by veratria diminishes the intensity of the respiration, and of the circulation. .

2d. The muscles lose their tension.

3d. The sensibility of the peripheral nerves is diminished.

4th. Small doses produce nausea, vomiting and diarrhœa.

5th. The secretion of urine is slightly, that of saliva markedly, increased.

Kölliker deduced from his observations—

1st. That veratria excites the medulla-oblongata, and the spinal marrow, and causes tetanus that does not last long.

2nd. The brain is not affected, at all events before the spinal marrow.

3d. It has no influence on the trunks of the motor nerves. The apparent paralysis depends on paralysis of the muscles.

4th. The striped muscular fibre very soon becomes paralyzed and motionless.

5th. The heart soon becomes motionless; this apparently depends on a direct influence exerted upon the muscular fibre.

6th. The topical application of dilute solutions affect the spinal marrow, and the medulla-oblongata, but not the nerves.

In his researches, Dr. Hirt employed veratria dissolved in vinegar or alcohol. The highest dose for frogs was one decigramme of pure veratria.

Experimenting on frogs, after a subcutaneous injection of 5 to 10 centigrammes, a striking diminution of the activity of the heart was noticed. In one case the pulsations, which, before the injection, were 11 in a minute, after it, within 5 minutes fell to 4; after 11 minutes the heart's action ceased. To ascertain the reason of this diminution, it was necessary that the poison should not act at the same time upon all three of the heart-centres; viz., upon the muscular motor (heart-ganglion), regulator (vagus), and sympathetic.

The experimenter first divided the vagus, and then injected 5 centigrammes of veratria. The pulsations of the heart, which, before the injection, but after the division of the vagus, were eight in a minute, varied in the next 22 minutes as follows: After 1 minute, 10; after 6 minutes, 6; after 13 minutes, 5; after 15 minutes, 2 pulsations; after 17 minutes the ventricles ceased to beat; in 2 minutes more the auricles, and after 22 the heart, were perfectly quiet.

There was then, after the division of the vagus, no immediate diminution of the activity of the heart; on the contrary, the diminution was preceded by an increase in activity. Repeated experiments gave the same result.

Two rabbits were experimented on, in one of which the vagi were previously divided. In the rabbit whose vagus was uninjured, the number of pulsations before the injection was 70; one minute after the injection of

4 centigrammes of veratria, it had fallen to 45, in 6 minutes, to 32, in 10 minutes tetanus supervened, which was soon followed by death.

In the other rabbit, after the previous division of the vagi, before the injection, the pulsations were 68; one minute after the injection they had risen to 80; in 2 minutes after they were 72; in 5 minutes, 50; death supervened in 10 minutes.

Examination immediately after death showed in the heart the same remarkable peristaltic-like movements which had been noticed in frogs. The paralysis of the ventricles preceded that of the auricles.

In a third series of experiments, Dr. Hirt made injections into the jugular vein. After the injection of 1 centigramme, the animal whose vagi were uninjured, died in 5 minutes; the heart's action and the pressure of the blood being both immediately diminished in a marked manner. When the vagi had been divided, there was a momentary increase of the blood-pressure, (from 110 to 120 m'mtr.), with increased action of the heart; then the blood-pressure immediately fell to zero, and the heart's action was arrested. Similar results followed the injection of 2.5 m'grmm. After the injection of 1 m'grmm., the animal whose vagi had been divided, died in 20 minutes, while the uninjured one recovered.

In order to exclude the sympathetic nerve-centre before the injection of veratria, first the vagi and then the spinal marrow were divided, and artificial respiration instituted. Before the division of the cord, the heart-beats were 64 per minute, the blood-pressure 80 m'mtr. After the injection, from 14 to 15 seconds, the heart-beat was 64, 68, 72, 52, 47, 30, 10, 5, 0; the blood-pressure, 80, 60, 50, 42, 40, 32, 20, 7, 0 m'mtr.

From these and similar experiments it results that, with the simultaneous quickening of the blood-pressure, the action of the heart is quickened before it becomes diminished. The author accounts for the facts he has

brought forward in the following manner: The centres being uninjured, veratria acts as an excitant to the vagus, on the organs of circulation, first as an excitant, then as a depressant; the excitation of the vagus and temporary excitation of the organs of circulation, act, as it were, in opposition to each other, but the excitation of the vagus is the stronger, and direct depression of the heart's action follows.

2. When the vagi are divided, this opposition is wanting, and the excitation of the organs of circulation causes a sudden increase in the heart's action.

3. When the vagi and spinal marrow are both divided, doubtless an excitation of the heart-ganglia takes place, which however soon yields to paralysis. As now, after the division of the spinal marrow, no excitation of the vaso-motor nerves can occur, enfeeblement of the separate heart-beats occurs, and this is immediately shown by the diminished pressure of the blood.

As to the respiration, Turnbull, Praag, and others, had already observed that it is diminished in frequency. When large doses of veratria were injected subcutaneously, the author saw in rabbits the frequency of the respiration fall from 96 to 24 in a minute: after small doses (5 m'grmm.) from 109 to 92. Moderate doses (2 ctgrmm.) causes the respiration to become irregular. When now, after the division of the vagi, the respiration, losing its relation to the activity of the heart, falls immediately, without its rapidity being previously increased, the author finds himself justified in assuming "a paralysis of the automatic centres of the organs of respiration."

The intensity of the respiration, according to the author, is not, as Praag maintained, diminished. The final termination of the nerves of respiration in the lungs are certainly not sooner paralyzed than the central organs.

Finally, the author calls attention to the phenomena, first observed by Petzold, which muscles poisoned by veratria exhibit under the stimulation of electricity.

The contractions do not come to an end with the stimulation, but the normal state of rest returns gradually, often 5 or 10 minutes after the stimulation is ended. Perhaps from this phenomenon may be explained the singular peristaltic-like heart-contractions which occur after poisoning by veratria: the diastole finds the muscular structure, instead of in a state of perfect rest, rather in a certain grade of contraction—a kind of tetanus. Digitalin has on the other hand an opposite physiological effect—it paralyzes the heart, and we find after poisoning by it, the organ in a state of complete relaxation, while after veratria poisoning it is almost linearly contracted and completely empty of blood. (Wien. Med. Wochenschr. XVII. 28, 29, 1867, in Schmidt's Jahrbücher, 1867, No. 6, p. 285.)

ART. 2.—*Poisoning from the internal use of Iodide of Potassium.*

DR. MECKLENBURG has observed symptoms of poisoning after the internal use of moderate doses of iodide of potassium in a man 28 years of age, suffering under gastralgia and swelling of the inguinal glands, but who had never had syphilis. Soon after the first dose, the patient was attacked with sharp pains in the eyes, excessive secretion of tears, and burning of the nose and mouth. A moderate drink of milk was followed by active vomiting and salivation. The countenance was deeply reddened, the upper eyelids swollen, particularly their tarsal borders, and of a bluish red. The patient was restless, threw himself about, complained of burning in the forehead, eyes, nose, mouth and throat; the burning feeling, though somewhat moderated, reached to the xiphoid cartilage. The extremities were cool, otherwise the skin was normal and perspiring. The pulse was small, weak, and moderately frequent. The tongue was normal. The mucous membrane of the

mouth, throat and eyes appeared reddened. There was frequent sneezing, with free watery secretion from the nose, and inclination to cough. The vomiting soon ceased; exploration of the chest and abdomen gave nothing abnormal.

As the bowels had not been moved for twenty-four hours, Dr. M. prescribed an enema of cold water, with a decoction of starch as a drink. Improvement soon took place, and in twelve hours the symptoms had disappeared, with the exception of the swelling of the upper eyelids. After some days a second dose of the iodide, of only five grains, was followed by the same phenomena, though in a markedly less degree. The iodide had no effect upon the swollen glands of the groin. (Berl. Klinik. Wochenschs. III. 25, 1866, in Schmidt's Jahrbücher, 1867, No. 5, p. 168.)

ART. 3.—*The Activity of the Skin in the Absorption of Medicines.* By DR. ROUSSIN.

WHILE it is abundantly proved that many articles of the materia medica, united with fatty matters, applied to the skin with a proper amount of friction, are absorbed, experiments with similar articles in a state of solution give different results. According to Laurés, and others, a man may sit for hours in a bath containing 200 to 300 grammes of iodide of potassium, without the urine showing the slightest traces of iodine; in the same way one may remain in a bath containing from 20 to 60 grammes of corrosive sublimate, without the slightest salivation being produced, while it would be occasioned by much smaller quantities rubbed into the skin. Finally, Magendie left a rather concentrated solution of strychnine in contact with the skin without causing the slightest spasm.

The experiments of Dr. Roussin confirm what was previously known on the subject. He remained from

an hour to an hour and a half in a bath, containing from 450 to 500 grammes of iodide of potassium; in no instance, when the body was dried or the solution of the iodide washed off on coming out of the bath, could the slightest trace of iodine be discovered within 24 hours in the urine, or the saliva. On the other hand, when, on leaving the bath, the solution adhering to the body, was permitted to evaporate spontaneously, iodine showed itself soon after in the urine. In one of his experiments the author wet his arms with solution of the iodide and then permitted the solution to evaporate spontaneously; four hours afterward iodine was found in both the urine and saliva. The experiments show that the skin being unbroken, iodide of potassium is absorbed only when it is left in substance in contact with the skin. This becomes still more evident from the following experiments. The author sprinkled the anterior part of his body from the neck to the abdomen with finely powdered iodide of potassium, rubbing it into the skin. The urine for the next 24 hours gave abundant evidence of iodine. The same evidence was given when the experimenter wore a shirt which, with the exception of the bosom, had been wet with a solution of iodide of potassium (10 per cent. in strength), and then dried.

Many other substances behave in a manner similar to iodide of potassium, and in this way we can understand the numerous symptoms of poisoning which have been observed, when through the medium of the clothes, or in some similar manner, poisons come in immediate contact with the skin.

The cause of this passive relation of the skin to medicinal substances dissolved in water with which it comes in contact, arises from the fact that it is not possible for the water to enter the pores of the skin, on account of the fatty character of its surface. On the contrary, water is repelled rather than attracted, just as it is by capillary tubes with fatty walls.

Dr. R. shows that the skin is not in reality wet by

watery solutions brought in contact with it; that is to say, the water does not extend in a continuous layer over it, but being repelled by the greasy surface, forms drops upon it. Even after soaping of the skin, the spreading out, the adhesion, of the drops which fall upon it, is only apparent; the solution again gathers into drops as soon as the layer of soap, which permitted its adhesion to the skin, is removed. The same thing is observed when the skin is treated with ether. So soon as this is evaporated, the original relations between the skin and watery solutions placed upon it are renewed, because a constant secretion of fat takes place from it. On the other hand, when a piece of skin, taken from the cadaver, is soaped after the removal of the layer of soap, water wets it, spreading itself out, without being gathered into drops.

The absorption of fatty matters by the skin, finds its natural explanation in the laws of capillarity: they can, rubbed into the skin, pass easily through the capillary vessels, and with them the substances with which they are incorporated, provided only they are minutely enough divided.

In like manner we can explain the absorption of solid matters when placed upon the skin in a pulverulent form, and here become mixed with its fatty secretion.

On the contrary, glycerine, which behaves toward the skin in a manner similar to water, is not to be used as a vehicle for substances which we desire to introduce into the economy through that organ. (Rec. des Mem. de Med. etc. Milit. 3d ser. XVIII. p. 134, Feb. 1867, in Schmidt's Jahrbücher, No. 7, 1867.)

ART. 4.—*Ergot and Coca in Paraplegia.*

Dr. T. VERARDINI, in a communication to the Academy of Sciences of Bologna, details the action of ergot and coca-leaves in some cases of paraplegia, in

which other remedies had been employed without benefit. He gave an infusion made from 2 to 4 grammes, or even more, of coca-leaves, with from 1 to grammes of ergot, in 24 hours, and by the persistent use of the remedy he observed a nutritive and stimulating action, not only upon the heart, but also upon the nerve centres. (Jour. de Brux. XLIV. Juin, 1867.)

ART. 5.—*On the Physiological Properties of the Ordeal Bean of Calabar, and on its Antagonism to Tetanus and Strychnia-Poisoning.* By EBEN. WATSON, M. D., Lecturer on Physiology in Anderson's University, Glasgow.

DR. WATSON prefaces his observations on the Calabar bean with an account by the Rev. W. C. Thomson, a missionary in Calabar, of its effects upon the natives when used as an ordeal. The notes of Mr. Thomson add little to our knowledge of the subject. In one case, when given to a pregnant woman, though the woman recovered, its use was followed by abortion. In a single experiment Dr. W. found that a drachm of concentrated tincture prepared from the spermoderm of the seed, injected beneath the skin of a dog, produced no peculiar effect. In his other experiments he used the powdered kernel, and a tincture, an alcoholic, and a watery extract made from it; all were found to be efficient preparations. An extract made with boiling acetic acid, was extremely bitter to the taste, and probably contained the active principle of the bean, but he did not employ it. Dr. W.'s experiments confirm what was already known on the subject of the Calabar bean. Its effects were paralysis of the muscular system. This was preceded by more or less marked twitchings or tremblings of the muscles of the whole body; the loss of voluntary motion commenced in the lower (in animals, the posterior) extremities. The paralysis gradually extended upward, implicating, first,

the superior or anterior limbs, afterward, the chest and neck, when the respiratory movements ceased, and the animal died of asphyxia. In some cases, where the dose of the poison is large, the paralysis affects the heart directly, and thus causes death. The paralysis seems intermittent, the animal sometimes rises and moves for a short distance, to fall again quite powerless; and this may be frequently repeated till death occurs. The sensibility of the body is unimpaired, but no pain is felt, and the mental faculties are unaffected.

Dr. W. attributes the effects of the bean to annihilation or suspension of the action of the spinal cord. He adds in confirmation of this opinion, that often just before the paralysis becomes perfect, the animal experimented on extends convulsively the fore and hind legs; these movements are involuntary and uncoordinated.

The iris was not so much contracted as by the external application of the active principle of the bean; even when the animal was under the full influence of a poisonous dose, the pupil was but slightly affected. He thinks that by the local application more of the poison is carried directly to the ciliary ganglion than by the general administration, and thus the effect is stronger and more lasting. The contraction of the pupil is caused by the affection of the lower segment of the spinal cord in the neck, extending to the trunk of the sympathetic through its numerous branches of communication; he thinks the radiating fibres derive their motor power through branches of the sympathetic extended to the ciliary ganglion. These being paralyzed, contraction of the annular fibres of the iris, which derives its motor power from branches of the third pair, or motor oculi, follows.

The secretions are much increased during poisoning by the Calabar bean. There is profuse perspiration, abundant flow of tears, discharge of frothy mucus and saliva from the mouth, a copious secretion of urine, and fluid evacuations from the bowels.

Dr. W. ascribes the increase of the secretions, first, to the congestion of the secreting organs, consequent upon the gradual arrest of the pulmonary circulation; and second, to the general muscular relaxation, extending to the coats of the blood vessels, permitting their great distention with slowly moving blood, and of watery transudation through their coats, which is mixed with the secretions.

Believing that the influence of the bean upon the nervous centres is precisely opposite that of strychnia and tetanus, and its secondary effects upon the motor apparatus is also the very opposite, Dr. W. performed four experiments on animals for the purpose of testing the antidotal effects of the two poisons. He finds these experiments (though they do not seem very conclusive) to support his views. He afterward treated two cases of traumatic tetanus by the internal administration of the extract or tincture of the bean, which terminated successfully. In the first of these cases the tetanic symptoms had lasted six days before the commencement of the treatment, and continued four weeks afterward; in the second, the disease began two days before the patient's admission to the hospital, and lasted more than ten days longer. (*Edinburgh Medical Journal*, May, 1867.)

ART. 6.—*Urtica Urens* in *Hæmorrhages*.

Two species of nettle, *urtica dioica* (common nettle), and *urtica urens* (dwarf nettle), common to both Europe and America, were formerly officinal in our pharmacopœia. They have long enjoyed a reputation as astringents and diuretics. Dr. J. C. Crocker, of Galway, N. Y., in a letter to the *Boston Journal of Chemistry and Pharmacy*, states that for many years he has used a saturated tincture of the plant in passive hæmorrhages, with great benefit. He has given it in purpura hæm-

orrhagica and in hæmorrhage from the stomach and uterus. In diseases of the mouth and neck of the uterus, he attributes to it an anodyne influence. The preparation he usually employed was the saturated tincture, which he gave in teaspoonful doses. He has found the expressed juice equally efficacious.

Two European physicians, Benavente and Vernack-aere, have employed a decoction of *urtica urens*, 60–80 parts of the plant to a 1000 of water, of which a cupful was taken three times a day in similar cases, particularly in passive hæmorrhage of the uterus. They speak in high terms of its efficacy. (*Gaz. des Hôpitaux*, 142, 1866, and *ibid.* 15, 1867.)

ART. 7.—*Koussine*.

DR. BEDALL, an apothecary of Munich, has recently published his researches upon Kousso. The results of his analysis agree essentially with those of Wittstein. Wittstein found in the flowers a fixed oil, chlorophyl, and wax; a bitter, acrid resin, a tasteless resin, tannic acid, and salts. Dr. B., in addition, found a peculiar ethereal oil, valerianic, acetic and boracic acids.

The author thinks that the Koussine of Pavesi is identical with the bitter acrid resin found by Wittstein and himself; not, however (as Pavesi stated), in the pollen, but generally in the flowers and stalks. Like *santonine*, it is obtained by treating the flowers three times with alcohol and lime, boiling the residue with water, mixing the several products, distilling off the alcohol, precipitating the cooled solution by acetic acid, and washing and drying carefully the obtained precipitate.

Koussine is a white, or yellowish white, easily pulverized, crystalline powder, without smell, at first tasteless, with a bitter, acrid after-taste; slightly soluble in water, abundantly in alcohol of 90 per cent., and in

solutions of the pure alkalies; its composition is C. 26 H. 22. O. .5. Under favorable circumstances, the flowers yield 3 per cent. This Koussine was administered successfully in five cases of tape-worm, by the author, though previously the usual remedies had been employed in vain. Its operation was attended with griping, purging, and sometimes vomiting. The dose was one, or in robust persons, two scruples, wrapped in wafer cakes; it was not repeated, or at most but a single time.

Martius had previously obtained from the flowers a blackish-green resin, which acted, according to him, more certainly than the flowers themselves. This resin of Martius contains, according to Dr. B., Koussine, together with the tasteless resin obtained by Wittstein and himself, and can probably be used, likewise, with greater advantage than the flowers. (Bayer. Arztl. Intell. Bl. 4, 1867, from Schmidt's Jahrbücher, 1867, No. 4.)

ART. 8.—*Concentrated Solution of Quinine.*

PROF. WENZEL BERNATZIK recommends for the purpose of subcutaneous injection, a solution of quinine in sulphuric ether. The alkaloid may be precipitated from a solution of its sulphate by ammonia; after being washed and dried, it is dissolved in ether, which is then evaporated to the requisite degree of concentration. B. recommends a solution containing .05 grm. ($7\frac{1}{2}$ gr. of quinia, equivalent to 9.3 of a grain of the sulphate), dissolved in a cubic centimetre (a little better than 15 min.) of ether. (Wien Med. Wochens. XVII. 10, 67.)

We have used a solution of the above strength at Bellevue Hospital in several instances; it occasioned no pain, beyond the introduction of the syringe, and was followed by no bad effects. In one case, ringing of the ears was caused in two minutes after the injection of 4 gr. of the alkaloid.

ART. 9.—*On Convallarin and Convallamarin.* By Dr. W. MARMÉ.

THE author has instituted experiments (in the Physiological Institute of Gottingen) on both these glycosides obtained by Walz from the *convallaria maialis* (lily of the valley), which answering the older observations on the action of the flowers, berries, and leaves of the plant, proves the presence in them of a principle producing energetic effects upon the system.

1. Convallarin, almost insoluble in water, in doses of 3 or 4 grains, acts as a purgative without causing notable inconvenience in the animals experimented upon.

2. The bitter-tasting convallamarin, soluble in water, even in small doses, produces active vomiting, equally whether given by the mouth, or injected beneath the skin, or directly into the vascular system.

3. Convallamarin has a special and marked effect upon the activity of the heart. Injected into the vascular system in small doses, it renders the heart's action slower (for dogs of the weight of from 7 to 14 kilogr., from 7 to 10 milligr., dissolved in water; for cats of 2 or 3 kilogr. in weight, from 3 to 6 milligr.; for rabbits of 1 to 2 kilogr., 2 to 3 milligr.). After larger doses, the slowing of the heart's action is followed by a very marked increase in its rapidity, which soon,—generally after some irregular, peristaltic-like motions,—ceases altogether to beat. The dose which proved fatal when thrown into the cervical vein, was for hounds of the above-mentioned size, from 15 to 20 milligr.; for rabbits, from 6 to 8 milligr.; injected subcutaneously, for doves, 1 to 3 milligr.; for frogs, from 3 to 6 millig., in watery solution.

4. Death follows generally in a few minutes after the exhibition of the above-mentioned doses, is occasioned by cessation of the heart's action, and is almost always attended by clonic convulsions of moderate degree. On immediate section the heart is found perfectly still, and its contractions cannot be excited by

mechanical, chemical, or electrical stimuli. Sometimes a slight quivering is seen, particularly in the right ventricle, in mammals and birds. The paralysis of the right ventricle precedes that of the left; the paralysis of the auricles is followed by that of the ventricles.

5. The effect upon the heart's action is produced through the vagi nerves. The slowing, the succeeding increased rapidity, and the cessation of the heart's action, are produced whether the nerves are intact or divided. As a rule the cessation of the heart's action occurs more rapidly when the nerves are cut.

6. The pressure of the blood does not fall during the slowing of the heart's action; during its increase the pressure is markedly greater.

7. The respiration during the slowing of the heart's action, is for the most part quickened or unchanged; during its increased rapidity it is very much slower; is, especially in dogs, interrupted; it always continues longer than the action of the heart.

8. No constant effect is observed upon the activity of the kidneys.

9. Long after the perfect cessation of the heart's action, electric stimuli produce corresponding contractions of the stomach, intestinal canal, and bladder.

10. Convallamarin is an active heart-poison, in physiological action is closely related to digitaline, hellebore, and the active principle of *upas antiar*, *nerium oleander*, and other *apocynaceæ*. In respect to its action on the heart, it resembles likewise *aconitine* and *veratrine*. With these last bodies, convallamarin as well as convallarin, have a resemblance in their chemical relations; but there are likewise very decided chemical distinctions between them. Convallamarin is distinguished, by its solubility in water, from them as well as from convallarin. Finally, the last is distinguished by its insolubility in water, its precipitation by the addition of water to its alcoholic solution, its indifferent behavior to tannic acid even in an acidulated solution, as well from veratrine as from convallamarin.

The dirty-green color into which the violet passes, when convallarin is freely added to diluted sulphuric acid, might cause it to be confounded with Grandeau's digitaline reaction. Its physiological action would in this case lead to its ready determination. (Ueber Convallarin u. Convallamarin; von Dr. W. Marmé. Nachr. von d. Ges. d. Wissensch. zu Göttingen, 1867, in Schmidt's Jahrbücher, 1867, No. 5. p. 166.)

ART. 10.—*The use of Veratrine in Neuralgia.*

HECTOR BERTRAND testifies to the efficacy of veratrine in neuralgia, particularly of the trigeminus nerve. He employs an ointment composed of from 30–40, or even 50 centigr. of veratrine, 25 centigr. of morphia and 30 grammes of lard. This is rubbed along the course of the affected nerve. In 5–10 minutes a gradually increasing feeling of warmth, accompanied by a crawling sensation (tingling and numbness?) is felt without apparent alteration of the cutis. As this feeling increases, in about 15 or 20 minutes the pain loses its activity. A cure is commonly effected by 3 or 4 repetitions of the frictions. (Recueil de Mem. de Med. etc. Milit. 3 ser. XVII. p. 303, Oct. 1866.)

ART. 11.—*Propolis as a Remedy for Diarrhæas.*

DR. H. O. HITCHCOCK, of Kalamazoo, Mich., on the recommendation of a layman, has employed propolis (a resinous exudation with which bees cover the bottoms of their hives) in the treatment of acute and chronic diarrhæas, and finds it "one of the best and most reliable remedies he has ever used, in nearly all cases of simple mucous diarrhœa, even when violent and accompanied by severe pains, vomiting and collapse. In

several cases of diarrhœa in children it has acted like a charm. It appears to possess an anodyne and soporific property, and yet does not cause constipation of the bowels." He "prescribed it in several cases of chronic diarrhœa, in some of which the disease was contracted in camp. All of these patients have reported to me 'that the medicine has acted like a charm,' being far more efficacious than any remedy they have used."

Dr. H. first employed a tincture, made by dissolving two drachms of selected propolis in four ounces of alcohol. Of this, from half a teaspoonful to a teaspoonful, in sweetened water, was given to an adult after each stool; for a child the dose was from five to twenty drops. The taste is pungently aromatic but not unpleasant.

Finding that when the tincture was added to water or syrup a copious precipitate was thrown down, Dr. H. afterward employed an alkaline solution, made by incorporating two drachms of propolis with one drachm of liquor potassæ, and then adding equal parts of simple syrup and water so as to make a two-ounce mixture. Of this the dose was half a teaspoonful after each stool. (Chicago Med. Jo., Sept. '67.)

ART. 12.—*The Use of Nux Vomica.*

At a late meeting of the Academy of Medicine of Paris, M. Delioux de Savignac read a memoir, "On the Paralyses which accompany and follow Dysentery and Dry Colics, and of their Treatment by Nux Vomica." The author believes that strychnic medicaments have more efficacy than electrotherapia in the treatment of the paralyses in question, he attributes it to the continuous action of the nux vomica, and to its electivity of action on the spinal marrow. However, he would avail himself of electricity should the nux vomica not be successful. Finally, if both modes of treatment fail, he recommends the sulphurous thermal waters; but with great care, for dysenteric paralysis, for fear of increasing or renewing the original malady.

ART. 13.—*Viburnum Prunifolium*—Black-Haw.

DR. PHARES, of Newtonia, Miss., calls attention, in the *Atlanta Medical and Surgical Journal*, to the medical properties of this plant, indigenous to this country. He regards it as a nervine, antispasmodic, astringent, diuretic and tonic, and claims that in the nervous disorders of pregnancy and uterine diseases, it is a valuable remedial agent. He says, "it is particularly valuable in preventing abortion and miscarriage, whether habitual or otherwise; whether threatened from accidental cause or criminal drugging."

The editor of the same journal adds his testimony in favor of the value of this remedy, and details several cases where threatened miscarriage was promptly arrested by its use. It is given in the form of an infusion or decoction of the bark, in doses of from one to two ounces, repeated every two or three hours, until the pains cease; then lessen the dose and lengthen the interval, according to circumstances. Where there is a tendency to abortion, it may be used as preventive three or four times daily, for a great length of time.

Dr. W. W. Durham writes to the *Atlanta Journal*, that the *hamamelis Virginica* also possesses properties in common with the *viburnum prunifolium*, at all events, in the power of preventing abortion or miscarriage. He says: "At one period of my practice the negroes used the cotton root so frequently to produce abortion, that my supply of black-haw became exhausted, and having heard of this power of the hazel to effect the purpose for which I used the haw, I resorted to it (the hazel) with perfect success. Having only used it for the purpose of preventing abortion, from the effects of the cotton-root, I cannot speak of it in other cases."

He makes a decoction of one ounce of the leaves to one pint of water, which is administered freely.

ART. 14.—*Syrup of Chloroform.*

MR. T. B. GROVES gives, in the *London Pharmaceutical Journal*, the following process for the preparation of a syrup of chloroform which, he says, manifests no tendency to separation:—Put into a twelve-ounce bottle one ounce of chloroform and about three drachms of ether; to the mixture add the same volume of the syrup to be employed; observe carefully the disposition of the fluids, the chloroform and ether will probably sink, then add *guttatim* more ether until the two liquids, on being shaken together, appear indifferent as to their position in the system; finally fill up the bottle with syrup, and shake well for a minute or two.

The syrup should not be too dense, or it will be difficult to impart to it sufficient agitation to insure the complete commixture of the fluids. The syrup should be composed of gum and sugar, of honey or treacle; syrup of sugar does not answer well, apparently on account of lacking viscosity.

The syrup, thus formed, has the same physical properties as chlorodyne, and like it, is readily miscible with water in any reasonable proportion (one to seven), and soluble in the water where the proportion of chloroform is within the limits of its solubility.

The advantages attending its use are these: 1. It does not need special precaution when being added to watery fluids, and in no case does it give rise to a deposition of large globules of chloroform. 2. When added in excess of saturation, the undissolved chloroform is deposited in *minute globules*, which, after lying together for days, show no disposition to combine, but may by a few shakes be dispersed evenly through the liquid, forming an emulsion sufficiently permanent to enable a dose to be measured without difficulty.

ART. 15.—*Prevention of Purulent Absorption by Ergotine.*

It appears from the observations of M. Labat, a physician of Bordeaux, that the administration of ergotine after amputations is attended with the most beneficial results. The ergotine is given after the operation, and each day up to the day when the ligatures come away, the medium dose being from five to six grammes. M. Labat's memoir on the subject, which was presented to the Société de Chirurgie, records fourteen cases treated in this way.

ART. 16.—*On the Use of Sulphite of Soda in the Treatment of Erysipelas.*

DR. ADDINELL HEWSON, of Philadelphia, stated that he had been using the solution of sulphite of soda as a local application in erysipelas since February, 1864, and had obtained results from it, in the various forms of that disease, which were to him both interesting and surprising. He had been induced to try it from the representation made by Prof. Polli of its influence in destroying all diseases of a cryptogamic or animalcular origin—a source to which recent researches would lead us to suppose erysipelas was due. At first he administered it internally, in doses of ten grains every two hours, as well as applied it locally; but the effects of the local use were so prompt and decided, that he has now abandoned its internal administration altogether. In extensive trials of this remedy, both in hospital and private practice, he has never seen it fail when thoroughly applied before the deep planes of cellular tissue had been invaded by the disease. Under the latter circumstance, no positive curative results were of course to be expected from its mere external use. But before such parts had become affected, a solution of ten grains of this salt to the ounce of water,

when thoroughly applied on lint all over the surface affected, and to a considerable distance beyond it, and covered with oiled silk to prevent the evaporation of the solution, had not only produced a decided bleaching effect on the discolored surface in every such instance, in the first twenty-four hours of its use, but had invariably destroyed all traces of the disease in forty-eight hours from its first application. The result was the same, whether the application was made in the traumatic or idiopathic form of the disease. He had thus cured twenty-seven cases, seven of which were of idiopathic erysipelas. Even in the cases where the deep planes of cellular tissue were involved, as well as the surface, the disease on the surface was always apparently affected by the application. It was most positively bleached in all instances, and in many was evidently destroyed, within the period above stated, even whilst that in the deeper parts proceeded on steadily to supuration.—*Trans. Coll. of Phys. of Philadelphia.*

ART. 17.—*The Therapeutical Applications of Digitalis.*

M. OULMONT, a candidate in the Section of Therapeutics in the Academy of Medicine, read at a recent meeting a paper "On the Therapeutical Applications of Digitalis." His object is to verify the experiments of Traube in Germany and of Hirtz in France. He has administered this substance in a great number of febrile affections, and especially *acute rheumatism*. In this last disease its action is manifested by characteristic phenomena. At the end of from thirty-six to forty-eight hours the pulse and temperature are lower, and toward the third day, and generally the fourth, nausea and vomiting ensue. By this time the pulse has diminished by twenty or thirty beats, and the temperature is 1° or 2° C. lower, the rheumatic symptoms gradually disappearing, and sometimes doing so with surprising rapidity.

A cure may be effected in five or six days, but ordinarily in from twelve to fifteen days—that is, when the rheumatism is free from serious complications. In patients exhibiting diatheses, or in whom they have already occurred before, rapid cure is rare, the disease resisting, and the relapses, over which the digitalis exerts no action, being more or less frequent. M. Oulmont concludes that the digitalis exerts its influence on the “febrile elements,” the disappearance of which may be accompanied by that of the disease; but that upon the “rheumatismal element” it exercises no effect. He has never met with cardiac complications among his patients, while old heart affections have been ameliorated. While delirium and other cerebral phenomena have not been infrequently present, these accidents have always promptly disappeared. The urinary secretion has not increased. The dose administered has been the same in all cases—viz., a spoonful every hour of an infusion made of 1 gramme of powdered leaves to 120 grammes of sugared water.—*Med. Times and Gazette.*

ART. 18.—*Atropine Harmless to Rabbits.*

Dr. OGLE, Lecturer on Physiology at St. George's Hospital, sums up a valuable paper, in which is included a large number of experiments, viz.:

1. That a rabbit of middle age can live for, at any rate, six days exclusively on belladonna without inconvenience.
2. That a rabbit can tolerate enormous doses of atropine administered either by the stomach or by subcutaneous injection, and that this tolerance is not due to non-absorption of the poison.
3. That this tolerance increases with the age of the rabbit.
4. That dilatation of the pupils is, however, pro-

duced just as readily, if not more so, in an old rabbit as it is in a young one.

Varia.

DEATH OF PROF. ROBT. WATTS.—Dr. Robert Watts, Professor of Anatomy in the College of Physicians and Surgeons, of which he was also the senior active member, died on the 8th day of September last, in Paris, where he had lately gone, in the hope of obtaining a restoration of his health. His death is yet too recent to attempt to give his full biography, but the few more prominent events which marked his long and useful life may be pointed out. Descended from a family to which had belonged at least one eminent physician, Robert Watts was born in the year 1812, at Fordham, Westchester County, New York. Having graduated from Columbia College in 1831, he pursued the study of Medicine in the office of Dr. Willard Parker, and obtained the degree of Doctor of Medicine in 1835, from the College of Physicians and Surgeons in New York. At the very beginning of his career as a medical student, he gave evidence of that talent and taste for anatomical pursuits, which afterward made him so eminent and successful an instructor. While yet an undergraduate, he was appointed Lecturer on Anatomy in the Vermont Medical College, and, in 1838, professor of the same branch in two of the largest and most flourishing medical schools in Massachusetts, namely, Woodstock and Pittsfield. In 1839, only three years after his graduation, he was called to fill the Chair of Anatomy in the College of Physicians and Surgeons; and he continued to perform the duties of this office without interruption, until death released him from his labors—a period of twenty-eight years. During the greater part of this time he was extensively engaged in private practice, and in 1859 was appointed one of the Attending Physicians to the Nursery and Child's Hospital in this city. He was also one of the founders

of the New York Pathological Society, and for several years its presiding officer.

Dr. Watts was not endowed with that gift, so valuable in enabling its possessor to meet the trials and competition of active life—a robust constitution; and when, about a year ago, he began to show the signs of deep-seated organic disease, his own feelings admonished him that his burden should be lightened, that his health demanded repose. But, long accustomed to disregard such warnings, his courage and resolution appeared only to increase as his physical powers declined; and he struggled on manfully through the arduous duties of the college session, at the close of which he fell, prostrated by an illness from which he was destined never to recover. As a last resort, he went abroad in search of health; but disease had already seized him with unrelenting grasp, and made steady progress till it gained the final victory.

NEW YORK COUNTY MEDICAL SOCIETY.—At the anniversary meeting held October 7th, the following officers were elected for the ensuing year: President, E. R. Peaslee, M. D.; Vice-President, John T. Kennedy, M. D.; Corresponding Secretary, H. Mortimer Brush, M. D.; Recording Secretary, Ellsworth Eliot, M. D.; Treasurer, William B. Bibbins, M. D.; Censors, Drs. James Kennedy, Alfred Underhill, W. H. Blakeman, Henry D. Noyes, and J. C. Smith. Dr. Noyes was also appointed delegate to the State Medical Society, vice Dr. Underhill, elected permanent member of the same.

VISIT OF MR. SPENCER WELLS.—This distinguished English ovariologist has just returned home from a brief visit to this country. In this city he was very handsomely entertained by several medical gentlemen. A special reception was given him at the Mott Memorial Library Rooms, by Dr. Fordyce Barker; and in Boston the same courtesy was extended to him by Prof. D. H. Storer. We learn that our Philadelphia friends were equally forward in their hospitable attentions.

REPORTED DEATH FROM INHALATION OF ETHER.—M. Laroyenne of Lyons, France, reported to the Medical Society of that place the following case: "Subject, a female aged 48 years, constitution feeble. Has an old affection of the left knee, with distortion of the lower extremities. Anæsthesia practiced with caution, insensibility occurring after the inhalation of ten drachms of ether. In two or three minutes, the breathing became embarrassed, face pale, pulse insensible. The recumbent position and cold affusions roused her from this first syncope. Hardly had she been put in bed—fifteen minutes after the first syncope—when a new attack came on, and notwithstanding artificial respiration, prolonged insufflation, galvanization of the diaphragm and the intercostal muscles and of the heart by the aid of long acupuncture needles, it was impossible to recall her to life. An attentive examination of the thoracic organs before anæsthesia, had failed to demonstrate any organic lesion. The analysis of the ether by Professor Glenard proved that it contained no foreign substance other than three in 100 parts of water. *Necropsy.* Mucus in the larynx and trachea; pleural adhesions; tubercles in the left pleura; base of left lung congested. The pulmonary tissue was impregnated with the odor of ether. Small quantity of fluid in the pericardium; heart normal; ventricles empty; auricles gorged with blood; nervous centres sound, possessing a feeble odor of ether; a small quantity of fluid in the ventricles. Medulla compressed by a tubercular mass developed in the seventh and eighth dorsal vertebræ, which presented no appearances from without. The alteration had advanced to the left coxo-femoral articulation, which presented tubercular masses and osseous fragments within the capsule; head of the femur completely detached; neck totally destroyed. Right hip joint full of blood; recent fracture of the neck of the femur." M. Laroyenne says: "Very evidently the ether was not the sole cause of death in the present case. It acted in favoring the syncope to which

the patient was already predisposed by reason of her state of general debility. Assuredly the syncope would not have been produced had the operation been effected without etherization."

DEATHS FROM CHLOROFORM.—Prof. Hodgen, of St. Louis, reports the following: "It becomes my duty to record another death from the use of chloroform as an anæsthetic agent—the first I have ever witnessed—and I think the fourth case of the kind that has occurred in this city since it has been presented to the profession for that purpose. Jacob Wilhelm, aged 59, a native of Germany, of original robust constitution, but who had suffered much during the past seven years from stone in the bladder, presented himself to me two weeks ago asking to be operated upon. At that time, though we found stone, it was thought prudent to put off the operation a short time, since he was suffering from malarious fever, and the weather was very hot. Yesterday (September 24), however, his general condition having sufficiently improved, he was, at 10 o'clock, A. M., brought to the operating-room of the St. Louis (Sisters') Hospital, and was placed upon the table for the purpose of having the operation of lithotomy performed. In the presence of some thirty medical men and students, assisted by Drs. Gregory, Dudley, Junghaus and others, chloroform was administered in the usual way, viz., a drachm of chloroform was poured into a conically folded napkin, and the patient allowed to breathe from it; of course, inhaled in this manner, it is largely mixed with air. He was announced under its influence, and I made the first incision in the perinæum. In searching for the staff, the patient seemed not well under the influence of the chloroform; a little more was added to the napkin, and he took two additional inspirations, when his condition was announced as critical by the attendants. Efforts were immediately made to resuscitate him by dashing cold water in the face and on the chest, violent spanking, striking the chest, and pressing the abdomen; and finally, by opening the windpipe and intro-

ducing a large catheter, fresh air was forced into the lungs and endeavors made to produce artificial respiration. These efforts were continued for over half an hour, but did not elicit the slightest response, and the patient succumbed almost instantly."—*St. Louis Med. & Surg. Reporter*.

The following case occurred at Charity Hospital, on Blackwell's Island, in the service of Dr. Mason: "John Targitt, a laborer, aged 45 years, was admitted to the venereal wards Sept. 10th, 1867, having been transferred from the Workhouse. On referring to the ward-book it was ascertained that under the name of William Conolly, he had been a patient at the Charity Hospital from April 27th till June 11th, of the present year, for a chancroid of the prepuce which required a partial operation for phymosis, and had been treated by the application of nitric acid. At the last-named date, June 11th, he was permitted to go out on a pass and, failing to return, he was marked 'discharged.' On his last admission, he presented the usual appearance of having recently been on a debauch. There was a suppurating bubo in the right inguinal region, and an ulcer, said to be of nine months' standing, on the prepuce. The prepuce was considerably indurated and hypertrophied, especially on its lateral and inferior aspects. It was considered advisable to circumcise the patient, and accordingly chloroform was administered, Sept. 12th, by the House Surgeon, assisted by two members of the House Staff. The chloroform employed was that prepared by Dr. Squibb; it was administered upon a towel held to the patient's nostrils, the pulse was carefully watched, and the towel was occasionally removed to allow the inhalation of atmospheric air. Under the influence of the anæsthetic, the pulse was accelerated, the mind was confused, as indicated by incoherent shouts, and the patient was excited to violent muscular exertions, requiring restraint to keep him in bed. While struggling in a semi-recumbent position, the muscular system became suddenly relaxed, and he fell back with a livid face,

pulseless and without respiration. Chloroform was immediately suspended, the tongue was drawn forward by a tenaculum, and artificial respiration, after Dr. Marshall Hall's method, was promptly established and continued during an hour and three-quarters. Ammonia was applied to the nostrils, and the galvanic current was passed repeatedly through the thorax and through other portions of the body. From the beginning of the first unfavorable symptom till the efforts for restoration were suspended, no pulsation could be detected in any of the arteries, nor did the heart resume its action. Post-mortem examination 23 hours after death. The abdomen was much distended. On section, the lungs appeared darker than usual, and did not collapse. The front edge of liver was pushed upward by the distended stomach and intestines which were filled with gas and highly congested; transverse colon adherent to gall-bladder. Both lungs were intensely congested, as were also the larger bronchial tubes. The blood was fluid. The pericardial sack contained a small amount of clear serum. The heart weighed $13\frac{1}{2}$ oz., and was much dilated; its walls were bloodless and its tissue softened and easily torn. A subsequent microscopical examination of the tissue showed it to be in a state of fatty degeneration. The walls of the right ventricle were very thin. The valves were normal, and there were no lesions of the larger vessels. The liver weighed $86\frac{1}{2}$ ounces, was friable, yellowish, and evidently fatty. The gall-bladder contained about two fluid drachms of bile. The spleen weighed 13 ounces, was very soft and easily torn, and was adherent to the abdominal wall through the whole extent of its convex aspect. The kidneys weighed respectively 7 oz., were intensely congested, and the difference between the cortical and medullary portions not very evident. On removing calvarium there oozed from the surface of dura mater about half a fluid-ounce of dark blood. Vessels of arachnoid much congested. The hemispheres of the brain were adherent just above the corpus callosum. Weight of brain 50 ounces.

There was a slight amount of serum in the lateral ventricles. No clot was found in any portion of the body."

THE NON-MERCURIAL TREATMENT OF SYPHILIS.—Another attempt has been made to deprive mercury of its attributes as an antisymphilitic. M. Dolbeau asserts that in no way can it stay the evolution of the disease. He proposes to abandon all syphilitic affections to themselves till they have reached their tertiary period, when he recommends the administration of the iodide of potassium. Dr. Dolbeau is warmly supported by M. Despres, surgeon to the Hôpital de Lourcine, the venereal hospital for women. The arguments he makes use of are very specious, but will not bear examination. He begins by trying to draw an analogy between the virus of syphilis and the different poisons. He fails to distinguish between the therapeutical and the physiological action of mercury. If it be true that mercury defibrinates the blood of persons in perfect health, and produces anæmia, it is equally so that all practitioners who have carefully watched its effects on patients affected with syphilis will agree that in such cases it tends rather to support the strength, augment the weight, and improve the condition. Such are, very briefly, some of the arguments used by MM. Guérin, Fort, Velpeau, Depaul, Panas, Verneuil, against MM. Dolbeau and Despres. M. Verneuil has summed up his own opinions in the following conclusions, which appear to reflect the general opinions of the Society.

1. Syphilis should be treated the moment the diagnosis is firmly established. It is useless to delay.
2. If a treatment by expectation may be of use in some cases to render the diagnosis more positive, it also occasions the loss of valuable time, and allows the syphilitic virus to instil itself into the economy, and to produce important changes in the anatomical elements and humors of the body.
3. The treatment should be continued during a long while.

4. Some syphilides will doubtless recover without any treatment. These cases are, however, rare, and it is impossible to recognize them beforehand. Granting, however, that treatment is useless, it is at any rate harmless.

5. Till some new remedy is discovered, mercury is, and will remain, the most powerful agent against the primary accidents of syphilis. If it cannot be quite admitted that its action against the disease itself is proved, it cannot be denied that it modifies the manifestation of the disease.

6. It is certainly as efficacious as any other treatment in mild cases; and it is indispensable in severe and tenacious ones, as well as in those of visceral syphilis, or in those of gravid women or new-born children.

7. A mercurial treatment, well instituted, accompanied by wise hygienic precautions, a proper régime, and a judicious use of tonics, in the immense majority of cases, is perfectly innocuous; and it is most important that the non-medical public should appreciate this fact.

8. The problem of how to obtain the cure of syphilis without mercury has not yet been solved, and there is no reason to suppose that it will be.

9. The treatment by potash has apparently no superiority over mercury.—*Brit. Med. Jour.*

QUININE.—Among the many remedial agents which organic chemistry has afforded us, quinine occupies the first place, chloroform the second. Without quinine, large tracts, indeed whole countries, would be simply uninhabitable for Europeans. To the backwoodsman a supply of quinine is as important as gunpowder. The "quinine famine" in the Mauritius demonstrated to thousands how small a thing even gold itself might become in comparison with this life-saving salt.

If the search for artificial quinine has been as unsuccessful as that for the philosopher's stone, it has at least resulted also in some great discoveries. It does

not appear to be generally known that the first of the analine colors was discovered during a search for artificial quinine. But, tired of waiting for that which did not come, finding that chemists could not produce quinine, it struck certain minds that it would be a surer plan to assist Nature a little, and Nature, as she always does when properly called upon, responded liberally. In effect, owing to the wasteful and ignorant manner in which bark was collected in its old habitat, it was, especially in the finer and richer varieties, getting scarcer. This circumstance has induced certain enterprising men to cause the cinchonas to be introduced into India, and it has not only been found that the change of habitat does not prevent the development of quinine, but the valuable discovery has been made by McLvor, and confirmed by DeVrij, that covering the bark during its growth with moss increases the percentage of alkaloids. The cinchona plantations in India are now so flourishing that there need be no apprehension of the supply of quinine ever failing, and if the discovery of artificial quinine should ever now be made, it would have to depend upon its cheapness for its value. We are aware that the discovery of artificial quinine has more than once been announced, but up to the present time such announcements have never been supported by positive evidence.—*Chemical News*.

A NEW METALLIC SNARE FOR THE LIGATURE OF ARTERIES.—Prof. N. R. SMITH, M. D., of the University of Maryland, has recently devised and successfully used an instrument to which he gives the above name. "It consists of a small silver tube, of the size of a No. 1 catheter (of length to suit the case), and a fine annealed wire of silver or iron, small enough to pass double through the tube. At one end of the tube, the doubled extremity of the wire will project in the form of a loop, or snare. The cut extremities of the wire will project at the other extremity, sufficiently far to be conveniently seized by the fingers.

“The operator, taking the tube in his fingers, or forceps, lays the projecting loop of wire over the bleeding vessel. An assistant then seizes the artery with the artery-forceps, or tenaculum, and elevates it. The operator then draws the wire by its extremities, and snares the extremity of the artery. He fixes the wire by simply bending it sharply over the margin of the tube.

“Supposing it to be after an amputation that the apparatus is used, the operator will now close the wound as usual. In eight hours after the application, the snare may be removed by simply drawing the loop of the wire into the tube, which causes it to act like a small ecraseur on the end of the vessel. The tube then slips easily from the wound, and no foreign substance is left. There will be no bleeding, as a coagulum will have been formed, and because also of the manner in which the artery is severed.

“In case of amputation of the thigh, I would leave the apparatus attached to the femoral artery for two days, and then remove it without fear.

“The advantages claimed for this apparatus are these:

“1st. It is applied with far more ease than a ligature, the loop being simply laid over the orifice of the vessel, and then the wires drawn—an exceedingly simple and easy manipulation. It obviates the passing of the hand around the tenaculum, as in applying the ligature (which often disengages the instrument), and obviates the tying of knots.

“2d. It has the advantage of being metallic and non-absorbent.

“3d. It is removed with even more facility than the ligature, or needle in acupuncture, and no foreign substance is left in the wound.

“4th. It is far more simple than acupuncture, and inflicts no wound as does the needle in that apparatus.

“The apparatus is equally appropriate for the ligature of arteries in the treatment of aneurism. In that

case, the wire must be first carried around the artery with the aneurism needle, and then the ends conveyed through the tube. The wires may be then drawn tightly. The tension may be increased after two or three days.

“The accompanying cut will make the apparatus perfectly intelligible.”



—*N. Y. Medical Gazette.*

TRAUMATIC TETANUS.

Editor New York Medical Journal:

Dear Sir—Having observed in the September number of your journal the reports of several cases of traumatic tetanus which terminated in recovery, I am induced to offer to you for publication the following case, which came under my care during the late war. It was reported at the time to the Surgeon-General, a copy and notes kept for my own use; these, unfortunately, have been lost, so that at present I can but give the case from memory.

George Thompson, a soldier of the 51st Regiment O. V. I., about 21 years of age, was wounded by the accidental discharge of a musket, the ball striking on the outer side of the left leg, about midway between the knee and ankle, passing a little upward, backward and inward, shattering the posterior portion of the tibia and fibula, and emerging from the inner side of the leg. It is a little singular that four men were wounded by the same ball, all in the left lower extremity below the knee.

The patient was taken to the regimental hospital in Nashville, Tenn., in charge of Surgeon Woodward, and kept there two or three weeks, when, that hospital breaking up, he was sent to hospital No. 8, and assigned

to my ward. This was about the month of June, 1862.

The wound had not healed; the jaws were closed; the head was thrown slightly backward; the muscles of the abdomen were tense; there was spasmodic action of the muscles of the extremities, especially the wounded limb, which gave him much pain; instead of constipation, as is usually the case, there was diarrhœa, probably owing to the fact that there was so much diarrhœa in the army, and so much tendency to this affection that we seldom found constipation in any disease. I do not remember whether he had diarrhœa at the time the wound was received, but I think such was the case. The tongue was covered with a dry, brownish fur, and the patient was in a low and rather typhoid condition. My diagnosis was tetanus. Dr. Woodward came to see him the day after his admission, from whom I learned that the symptoms described above had existed about four days. The patient was seen by the different surgeons of the hospital and those visiting. Of course a fatal result was expected.

Chloroform was administered by inhalation, but it did little or no good, controlling the spasms only so long as he was under its influence, and was evidently not the agent for one in his low condition; it was, therefore, discontinued. I had read from some of our text-books and journals that alcoholic liquors in large quantities *sometimes* acted well in tetanus, and it seeming to be indicated in this case, he was put upon the very free use of whiskey, with such nourishment as he could take, and a little opium to restrain his diarrhœa, and to my great astonishment, he made a good, though tedious recovery, the spasmodic action of the muscles lasting two or three weeks.

T. H. HAMMOND, M. D.,
St. Louis, Mo.

THE TREPHINE AMONG THE INCAS.—At a late meeting of the Paris Academy of Medicine, M. Broca laid

on the table an interesting frontal bone, which had been removed from one of the tombs of the incas at Cuzco, Peru—tombs which existed prior to the expedition of Cortez. It bore undoubted signs of having been perforated with the trephine; and although the great antiquity of the operation of trepanning has been well established, yet of its performance by the older nations of the New World we had hitherto no indications. The aperture is situated on the left side of the bone, and the condition of the surrounding bone does not admit of a doubt that the operation was performed during life. M. Nélaton is of opinion that the individual must have lived from a week to a fortnight subsequently. A white spot, and the greater porosity of this portion of the bone, would seem to indicate that the process of necrosis was about to be established. There is no trace of fracture, and the probability is that the operation was executed for an internal lesion, which would imply a somewhat advanced stage of surgical diagnosis. The internal table exhibits a porosity and inequality not seen at the outer table, and which gives rise to the suspicion that a collection of matter might have existed. The hole is of about the same size as in the ordinary operation, but it is quadrilateral in place of being round. A careful examination of the edges of the aperture leads to the conclusion that it was not executed by any special instrument, but by means of a knife, graver, or chisel.—*Paris Letter, M. T. & G.*

BACTERIA AND HOOPING-COUGH.—At a meeting of the French Academy on Monday, the 5th inst., M. GUIRETTE presented a note in which he described the results of a microscopic examination of the watery vapor exhaled by persons suffering from whooping-cough. He stated that in all cases where he had examined the vapor under the microscope, he found it to contain *bacteria* in immense numbers. The bodies he described as such were more or less fusiform, and measured about

the two-hundredth of a millimetre in length and about the three-hundredth of a millimetre in breadth.—*Med. Times and Gazette*, Aug. 10, 1867.

UNIVERSITY OF SOUTH CAROLINA (*Columbia*).—A Medical Department has been organized in this University. The faculty consists of John T. Darby, M.D., Professor of Anatomy and Surgery; A. N. Talley, M.D., Professor of Principles and Practice of Medicine and Obstetrics; Joseph Le Conte, M.D., Professor of Chemistry and Pharmacy; M. LaBorde, M.D., Professor of Physiology and Hygiene; John Le Conte, M.D., Professor of Materia Medica and Medical Jurisprudence. The medical course commences on the first Monday in October, and continues for nine months.

LOSSES OF THE PRUSSIAN ARMY DURING THE RECENT WAR.—The number of the *Journal of the Royal Statistical Office*, just published at Berlin, gives the first official report that has been issued of the losses of the Prussian army in the last war. The total number of the wounded was 669 officers and 15,508 men; of those who remained on the field, 178 officers and 2,753 men; of those who died of their wounds, 64 officers and 1,435 men; and of those who died of illness contracted during the campaign, 53 officers and 6,734 men. The total loss amounts to 315 officers, 10,562 men, and 6,490 horses. The number of officers wounded was relatively twice as great as that of the private soldiers.

PRIZES.—The Rhode Island Medical Society has announced as the subject for the Fiske prize of five hundred dollars: "*The Lesson of the Late War. In what has the Science of Medicine thereby been advanced?*" The essays must be sent with a sealed envelope, containing the name of the author, to Dr. S. A. ARNOLD, Providence, R. I., before the 1st of next May.

The Medical Committee on the Boylston Prize of Harvard University met on the 5th of June, but

decided that none of the essays offered merited the prize. For 1868 the following questions are proposed :

1. *The Physical and Mental Influences of the United States and Canada upon Immigrant European Races.*
2. *Question of the Contagiousness of Asiatic Cholera in the United States.*

The author of the best dissertation on either of these subjects will be entitled to a premium of *one hundred dollars.*

Dissertations must be transmitted, post-paid, to JOHN JEFFRIES, M. D., *on or before the first Wednesday in April, 1868.*

The following questions are proposed for 1869 :

1. *Food in Disease, Acute and Chronic. Its Variety, Advantages, Dangers, and Relation to Appetite.*
2. *The Surgical Treatment of Hæmorrhoids; and the Surgical Treatment of Fistula in Ano, with its Results.*

These dissertations are due before the first Wednesday in April, 1869.

The author of the best dissertation, considered worthy of a prize, on either of the subjects proposed for 1869, will be entitled to a premium of *one hundred and fifty dollars.*

The Committee appointed by the Connecticut Medical Society, offer in behalf of the Society the following prizes: The Jewett Prize of two hundred dollars for the best essay on the question, "*By what Hygienic means may the Health of Armies be best preserved?*" This prize was not awarded for the current year, the essays received being considered not quite up to the mark. They also offer the Russell Prize for the best essay on the subject, "*The Therapeutic Uses and Abuses of Quinine and its Salts.*" Essays must be sent on or before the 1st of March, 1868, to any of the Committee, B. N. Catlin, West Meriden; L. J. Sanford, Henry Bronson, and Charles L. Ives, of New Haven, and Melancthon Storer, of Hartford.

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NEW BOOKS.

Prof. George T. Elliot, of this City, has in press a book entitled "*Clinical Lectures on Obstetrics.*" It is now rapidly passing through the press of Messrs. D. Appleton & Co. of this city.

Prof. T. G. Thomas' "*Treatise on the Diseases of Women,*" will shortly appear from the press of Henry C. Lea of Philadelphia.

Dr. Antoine Ruppaner's work on "*Laryngoscopy and Rhinoscopy,*" is nearly ready. It is published by Messrs. A. Simpson & Co., of this city. From the same press will also appear, in a few days, the translation of Klob's "*Pathological Anatomy of the Female Sexual Organs,*" by Drs. Kammerer and Dawson.

NEW FRENCH JOURNAL.—We have received in exchange a package of numbers of a new journal, *L. Evénement Medical*, edited by Prof. Piorry. It is published weekly in newspaper form, and has a freshness and spiciness about it seldom met with in the continental medical journals.

A number of book reviews and much other valuable material is unavoidably crowded out of this number.

ERRATA.—Second Article, October Number of Medical Journal.

- Page 28, after *Widows*, omit " " "
 36, in No. 7 of table, read 14 (months) for 13.
 37, " 41 " 33 (years) " 83.
 " 57 " 1½ " 1½.
 38, in Nos. 66 and 95 of table, read 3d. for 2d.
 " in No. 93 of table, read 2 (years) for 32.
 " " 98 " 1½ " 1½.
 39, " 113 " 1 month after labor. (In middle column.)
 42, line 21, close of paragraph should read :—"Two women had no apparent areola, but had papillary elevations, in one there was no areola," etc.
 44, eight lines from bottom, read 9.86 per cent. for 69.86.
 45, below middle, read 1,524 for 1,584.
 " three lines from bottom, read 4.02 per cent. for 4.20.
 49, read "One (pair of twins was born) in the second, head presentation and pelvic presentation."

BOOKS AND JOURNALS RECEIVED.

Injuries of the Eye, Orbit, and Eyelids: their immediate and remote effects. By George Lawson, F.R.C.S., Eng., &c. Philadelphia: Henry C. Lea, 1867, 8vo, pp. 408.

Is it I? A book for every man. By H. R. Storer, M.D., Prof. Obstetrics and Diseases of Women, Berkshire Med. Coll., &c., &c. Boston: Lee & Shepard, 1867, 16mo, pp. —

Chemistry. By William Thomas Brande, D.C.L., F.R.S.L., &c., &c., and Alfred Swaine Taylor, M.D., F.R.S., &c., &c. 2d American Edition, thoroughly revised. Philadelphia: Henry C. Lea, 1867, 8vo, pp. 764.

The Physiology of Man. Designed to represent the existing state of Physiological Science as applied to the Functions of the Human Body. By Austin Flint, Jun., M.D., Professor of Physiology in the Bellevue Hospital Medical College. New York: D. Appleton & Co., 1867, 8vo, pp. 556.

A Biennial Retrospect of Medicine, Surgery, and their allied Sciences. Edited by Mr. H. Power, Dr. Anstie, Mr. Holmes, Mr. Thomas Windsor, Dr. Barnes, and Dr. C. H. Fagge, for the New Sydenham Society. Philadelphia: Lindsay & Blakiston, 1867, 8vo, pp. 522.

Transactions of the American Medical Association for 1867. Vol. 18. Philadelphia: Printed for the Association, 8vo, pp. 551.

Synopsis of the Course of Lectures on Materia Medica and Pharmacy, delivered in the University of Pennsylvania, with five Lectures on the *modus operandi* of Medicines. By Joseph Carson, M.D. 4th Edition, revised. Philadelphia: Henry C. Lea, 1867, 8vo, pp. 272.

Hufeland's Art of Prolonging Life. Edited by Erasmus Wilson, F.R.S., &c. Philadelphia: Lindsay & Blakiston, 1867, 12mo, pp. 298.

Epidemic Meningitis, or Cerebro-Spinal Meningitis. By Alfred Stillé, M.D. Philadelphia: Lindsay & Blakiston, 1867, 8vo, pp. 178.

The Physiology and Pathology of the Mind. By Henry Maudsley, M.D., Lond. New York: D. Appleton & Co., 1867, 8vo, pp. 441.

Modern Inquiries: Classical, Professional and Miscellaneous. By Jacob Bigelow, M.D. Boston: Little, Brown & Co., 1867, 8vo, pp. 375.

Introductory Lecture to the 4th Session of Toland Medical College, San Francisco, Cal. By Henry Gibbons, M.D., Prof. of Materia Medica.

The Druggist and Chemical Gazette.

The Cincinnati Lancet and Observer. September.

The Galveston Medical Journal.

The Humboldt Medical Archives. September, October.

The Journal of Materia Medica. August.

The Leavenworth Medical Herald. October.

The Medical Investigator. August, September.

The Medical News and Library. August, September, October.

The Medical Record. September 1, 16; October 1, 15.

The Medical Gazette. New York. September 28; October 5, 12, 17.

The Nashville Journal of Medicine and Surgery. September.

The New Orleans Medical and Surgical Journal.

The Philadelphia Medical and Surgical Reporter. September 14, 21, 28.

The Pacific Medical and Surgical Journal. September.

The Quarterly Journal of Psychological Medicine. July, October.

The Richmond Medical Journal. September.

The Southern Journal of Medical Science.

The St. Louis Medical Reporter. August 15; September 1.

The St. Louis Medical and Surgical Journal. September, October.

The Western Journal of Medicine. September, October.

The Nation. July, August, September, October.

The Round Table, July, August, September, October.

The Scientific American. July, August, September, October.

- The Evening Gazette, New York. October.
 The Historical Magazine. May, June, July.
 The London Lancet. June 8, 22, 29; July 6, 13, 20, 27; August 3.
 The Medical Times and Gazette. June 22, 29; July 6, 13, 20, 27; August 3.
 The Medical Press and Circular. June 19, 26; July 3, 10, 17, 24, 31; August 7.
 The British Medical Journal. June 22, 29; July 13, 20, 27; August 2.
 The British and Foreign Medico-Chirurgical Review. July.
 The Medical Mirror. June, July, August, September.
 The Edinburgh Medical Journal. August, July, September.
 The Glasgow Medical Journal. April, May, June, July.
 The Dublin Quarterly.
 The Journal of Cutaneous Medicine. Vol. 1. No. 2.
 The Journal of Mental Science. July.
 The Anthropological Review. From 1865 to 1867.
 Braithwaite's Retrospect. English Edition. July, 1867.
 Rankin's Abstract. English Edition. July, 1867.
 The American Journal of Medical Science. July, October.
 The American Journal of Dental Science. September, October.
 The American Journal of Pharmacy.
 The American Literary Gazette and Publishers' Circular. September 1, 16; October 1, 15.
 The American Eclectic Medical Review. September.
 The American Naturalist. September, October.
 The Atlanta Medical and Surgical Journal. September.
 The Boston Medical and Surgical Journal. August 22, 29; September 5, 12, 19.
 The Boston Journal of Chemistry. August, October.
 The Buffalo Medical and Surgical Journal. August, September.
 The Canada Medical Journal. July, August, September.
 The Chicago Medical Examiner.
 The Chicago Medical Journal. September.
 The Dental Cosmos. September, October.
 The Detroit Review of Medicine and Pharmacy. August, September.

NEW YORK MEDICAL JOURNAL:

A MONTHLY RECORD OF
MEDICINE AND THE COLLATERAL SCIENCES.

VOL. VI.] DECEMBER, 1867. [No. III.

Original Communications.

ART. I.—*On the Physiological Action of the Muscles concerned in the Movements of the Lower Jaw.* By THOMAS BRIAN GUNNING, New York.

[The following paper is an extract from an extended memoir by Dr. Gunning on the Muscles of the Head, Neck, Jaw and Palate. The portion here published is necessary to a complete understanding of his views on the "Diagnosis of Fractures of the Lower Jaw," which will subsequently appear, as promised in his previous article in the September number of the JOURNAL for 1866. The part of the memoir relating to the sterno-cleido-mastoid is also included on account of the novelty of the views entertained regarding the action of this muscle.—Ed. N. Y. M. J.]

THE necessity for muscles of great power, and acting upon long levers, to turn the head quickly, is demonstrated by the action of the sterno-cleido-mastoid. In very quick turning of the head the muscle acts instantaneously; this, however, is but seldom. In the ordinary rotation of the head, it takes no part whatever, unless the head is obstructed as when lying down on

the side. But if the head is turned far around, the muscle always acts firmly in the last part of the movement. This can be verified if the body is held upright and the forefinger placed in the interclavicular notch, with the thumb and second finger resting on the tendons of the muscles, and notice taken of the tightening and relaxation of the tendons. The comparative indifference of this muscle to the head's rotation can be more easily demonstrated in the evening, or when fatigued. From this it appears that the action of the *sterno-mastoid* in turning the head is of a very secondary character. It acts only when the rotators of the atlas and occipital bone, and the *splenius capitis* and *colli* of the opposite side, are already in action, and even then only to assist in turning the head quickly to carry it further round, or to overcome obstruction. When it assists in turning the head it draws one mastoid process forward, while the *splenius* pulls the other mastoid process backward.

The sterno-cleido-mastoid muscle is said to be a rotator, a flexor, and an extensor of the head. What this flexing of the head means, in addition to lateral movement, may be learned by the following quotation. "The sterno-mastoid muscles, when both are brought into action, serve to depress the head upon the neck, and the neck upon the chest."* These views are also maintained by J. Cruveilhier† and may be accepted as those not only of the French anatomists and physiologists generally, but also of the German and English with

* Gray's Anatomy. 2d Amer. edit., p. 256. Phil. 1865.

† Traité d'Anatomie Descriptive. Troisième edit., tome deuxième, p. 173. Paris. 1851.

few exceptions. Professor Henle, however, says positively that these muscles do not flex the head down in front, and that the muscles lift the head and bend the neck when the body is brought up in rising from the back. This is a great advance upon what is said by others, but beyond this he gives no intimation of understanding their peculiar and most important function.

The insertion of the sterno-cleido-mastoid muscle is around the front of the mastoid process, and back along the superior curved line, about half the distance between the mastoid process and the centre of the occipital protuberance, while the front of the mastoid process is nearly always on a line with the centre of the condyles of the occipital bone (in rare instances, however, it is nearer the front of the condyle). The sterno-cleido-mastoid muscle is consequently inserted back of the centre upon which the head rocks (except in rare cases when a small portion of the muscle is a little forward of it). Notwithstanding this, it is set down as rocking the head forward, and the action of the muscle in rising is brought forward to prove it. This experiment, however, if properly conducted and explained, will prove the contrary. If the experimenter, while lying flat on his back, with the forefinger resting in the interclavicular notch, and the thumb and second finger on the tendons, will raise his head and shoulders a little, he will find that the muscles are acting strongly; then, by staying in that position and rocking the head backward and forward, it will be felt that the muscles are unaffected in any part of their fibres, and that they pay no attention to the movement of the head, neither the tendons on the sternal portions

nor those on the clavicles being relaxed for a moment. Then sit up, throw the head forward sufficiently to relax the tendons, and rock the head as before; it will now be found that the tendons remain relaxed, showing that tightness of the tendons did not conceal action of the muscles in the first experiment, and demonstrating that the *sterno-cleido-mastoid* muscles do not "serve to depress the head upon the neck." On bringing the head forward it will be found that it is assisted by the muscles only until the head comes to its centre of balance, when the tendons relax and remain so, even when the chin touches the breast. But if the head is obstructed in this downward movement, these muscles will then assist to bring it down in front and to hold it there. The *sterno-cleido-mastoid* muscles do not, however, in this rock the head upon the atlas, but bring the atlas forward. Neither are they "extensors of the head" in the sense indicated by the books, which seems at first sight to accord more with their insertions back of the centre of the condyles. But the insertion is so peculiar that it requires careful consideration to determine how the muscles affect the head when the sternal and clavicular portions of both sides are in action. The mastoid process is always below the superior curved line upon which the back part of the muscle is inserted. When the process is large it may be more than half an inch below it, although much less when the process is small, as in childhood before the cells are developed. Moreover, the uniformity of position between the mastoid processes and the condyles horizontally is not met with in their vertical relation,

the condyles being on some skulls more than half an inch lower than the mastoid processes, while on others the processes are as much below the condyles, the large proportion being between these extremes. These variations go far to show that the sterno-mastoid muscles are not intended to rock the head backward, for when the mastoid process is much lower than the condyles, and especially when it is large and projects forward somewhat, to correspond to the direction of the muscle, it follows that as the head is pulled down by the *trapezii*, etc., the mastoid processes go upward and forward; consequently, if the *sterno-cleido-mastoids* were to act to bring the head down behind, the portion on the mastoid process—the strongest part of the muscle—would hold the head down in front, probably as much as that on the occipital bone would pull it down behind. But their action can be tested by lying down so as to remove the necessity for action of the muscles to hold the atlas. In this position (care being taken not to lift the atlas or neck) the *sternal* portion of the muscles will not act in concert with the other muscles to rock the head back, even if the whole weight of the body is thrown upon the back of the head, and I have been unable to find any action in the clavicular portion, although the action of this part of the muscle is so delicate and prompt that it can be distinctly felt when the foot is raised in walking, the head and body being then thrown over to the other side to restore the balance. Further, when the *sterno-cleido-mastoid* and the *splenius* of the same side are acting in concert to pull the head down to the shoulder, no backward movement of

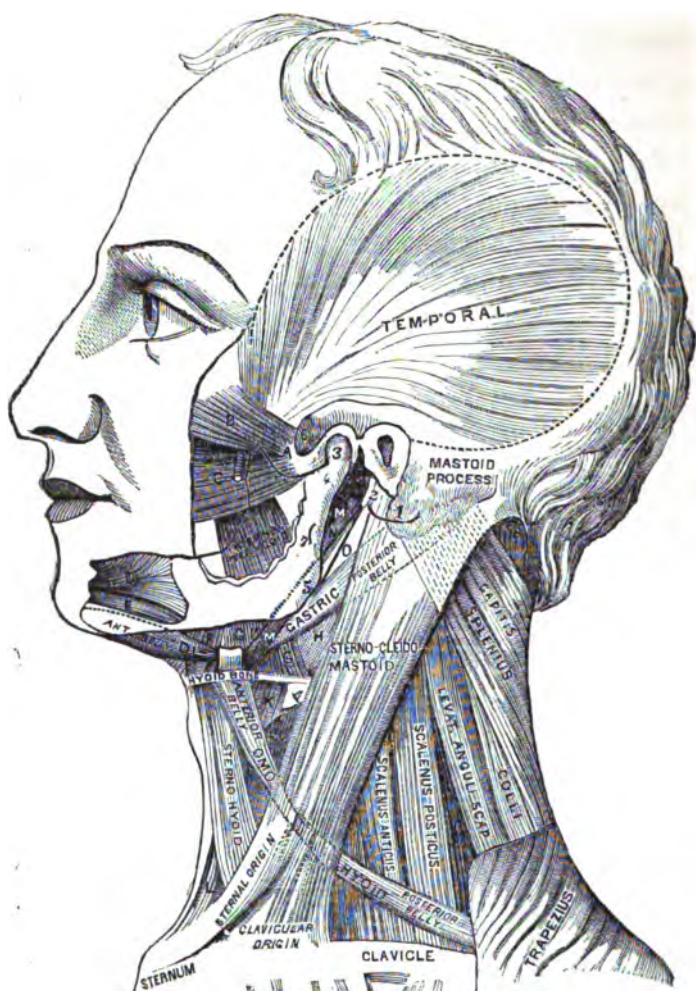
the head is discoverable. *This* is conclusive, for both these muscles having similar insertions, if one rocks the head back the other must, and their combined action would be manifest if they exerted it.

It has been previously shown that this muscle acts as a *rotator*, but only by sometimes assisting the *splenius*, etc., of the opposite side, and as a lateral *flexor*, in connection with the *splenius* of the same side, but only when the head is obstructed, and then generally by its clavicular portion, the sternal acting only in extreme necessity. It is now seen that it does not flex the head down in front, that is upon the atlas at all, and that its action as an extensor of the head can not be demonstrated. The proper function of the *sterno-cleido-mastoids* when acting in concert, is to give anterior support to the top of the spine, the *splenii* muscles giving posterior support. This may be easily proved by sitting down and watching the tendons. When the head is back of its centre of support both the sternal and clavicular tendons are tightened, when rising they become tenser until the head is started, as it comes into balance they relax. On sitting down, the tendons tighten to check the head as it goes back out of balance. Sudden forward movements tighten them until the head is in motion, they then slacken as the head is forward of the centre and the atlas supported by the *splenii* muscles. If the head is in balance any pressure upon the forehead brings the muscles into action to preserve it. The action of the muscles in these movements is but a modification of the service rendered by them in raising the head from the horizontal position, in doing which the muscles at first

support more than the weight of the head, for in supporting the mastoid processes they support the atlas, and make it a fulcrum between the bulk of the head and the counter-balance at the other end of the lever, but as the body comes upright and the head into balance, the strain upon the sterno-mastoid muscles gradually diminishes, until the head is held by the posterior muscles, when the spine bears all the weight.

[A reference to the figure (page 200) will render this explanation more apparent. The same figure also illustrates the action of the muscles of the lower jaw, and confirms the opinions expressed in the subsequent portions of this paper.]

The hyoid bone, in addition to the muscles which pass to it from parts above the lower border of the jaw, gives attachment to others, which pass up the front of the neck below the jaw. Of these the *sterno-thyroid* arises close to the centre of the posterior surface of the upper bone of the sternum, and falling back somewhat as it passes up, is inserted into the side of the thyroid cartilage, from whence the *thyro-hyoid* (appearing like a continuation of the preceding) goes up and is inserted into the body and greater cornu of the hyoid bone. The *sterno-hyoid* arises from the sternum and end of the clavicle and is inserted into the lower border of the body of the hyoid bone. It is separated considerably from its fellow at its origin, but crosses the sterno-thyroid and approaches it in the middle of its course; it leaves the front of the thyroid cartilage uncovered.



1. Centre of the condyle upon which the head rocks. 2. Styloid process. 3. Condyle of Lower Jaw. 4. Neck of do. 5. Angle of do. 6. Eminentia Articularia. 7. Curve upon which the jaw opens.

A. External Pterygoid. B. Upper head of do. C. Lower head of do. D. Genio-Hyo-Glossus. E. Genio-Hyoid. F. Mylo-Hyoid. G. Hyo-Glossus. H. Middle Constrictor. J. Inferior do. K. Thyro-Hyoid. L. Sterno-Thyroid. M. Stylo-Hyoid. N. Stylo-Hyoid Ligament. O. Stylo-Maxillary Ligament. P. Complexus.

The chin is thrown up and the jaw and the curved line which indicates the position of the condyles of the head, are drawn small to show the muscles more distinctly. For the same purpose the Platysma-myoides and Masseter muscles are left out, and the insertion of the Temporal and the origin of the Trapezius cut away.

The *omo-hyoid* arises from the upper border of the scapula, and occasionally from the transverse ligament which crosses the supra-scapular notch. It passes across and up the side of the neck to be inserted into the body of the hyoid bone. It crosses over the *scaleni* and *thyro-hyoid* but under the *trapezius* and *sterno-cleido-mastoid* muscles. It is a double-bellied muscle united by a tendon which is held down by a process of the deep cervical fascia. The first portion is nearly horizontal in its course, but underneath the sterno-mastoid muscle, where the cervical fascia passes around the tendon, it turns up so that the second portion is nearly vertical in its course to the hyoid bone. These are the directions of the muscle when at rest, but when active it approaches the line of its attachments and the cervical fascia is drawn upward and backward.

The *digastric*, another double-bellied muscle, has peculiar relations with the preceding. It arises from the digastric notch, on the inner side of the mastoid process of the temporal bone, and passes downward, forward, and inward, to the side of the hyoid bone, where its rounded tendon (after passing through the stylo-hyoid muscle) is held by an aponeurotic loop in connection with the side of the body of the hyoid bone, above the insertion of the *omo-hyoid*. The muscle then passes forward and is inserted into a large depression on the inner side of the lower border of the jaw close to the symphysis. The tendon which divides the posterior and longer belly from the anterior, gives off a large aponeurotic layer, which is attached to the body and great cornu of the hyoid bone; it is termed the *supra-*

hyoid aponeurosis. It forms a strong layer of fascia between the anterior portions of the two muscles, and a firm investment for the other muscles of this region. This muscle is peculiar in not being inserted into the hyoid bone, but attached to it by a loop; this allows the muscle to act without interfering too much with the hyoid bone. The *digastric* muscle has not, however, that freedom which is attributed to it as a reflected cord, for its aponeurotic connection with the hyoid bone and adjoining muscles prevents it from sliding through the loop which attaches it to the hyoid bone, except to a very limited extent. This powerful muscle exerts great influence from the various and important movements in which it takes part.

The service supposed to be rendered by the foregoing muscles is shown by the following selections:

J. CRUVEILHIER says: "The *sterno-hyoid*, the *omohyoid*, the *sterno-thyroid*, and the *thyro-hyoid* are the simplest in their structure and the simplest in their action; all coöperate to the lowering of the jaw. Moreover, if the jaw is fixed, they tend to flex the head."*

SAPPEY says that "the *genio-hyoid* raises the hyoid bone when the jaw is fixed, and lowers the jaw when the hyoid bone is fixed, and flexes the head when both are fixed."†

J. CRUVEILHIER says of the *digastric*: "If the hyoid bone is fixed the posterior belly becomes the lower of the jaw, in consequence of the reflection of the

* *Traité d'Anatomie Descriptive*. 3me ed., tome 2me, p. 179.

† *Traité d'Anatomie Descriptive*. Tome 1, première partie, p. 213. Paris. 1850.

muscle; the anterior and posterior bellies can throw the head backward.”*

JAMAIN says: “If the hyoid bone is fixed, the digastric coöperates in lowering of the jaw.”†

TODD’S *Cyclopædia* says: “When the hyoid bone is fixed by its depressors, and perhaps in some degree retracted by the joint actions of the posterior belly of the digastric and of the omo-hyoid, the anterior belly, both passively as a reflected cord, and actively in virtue of its muscular fibres, depresses the lower jaw, and opens the mouth.”‡

“Chief action of the omo-hyoids is to tighten the cervical fascia during deglutition; they are also capable of depressing the hyoid bone.”||

GRAY’S *Anatomy* says of the digastric, mylo-hyoid, and genio-hyoid: “When the hyoid bone is fixed by its depressors and those of the larynx they depress the lower jaw;”¶ and further, that in deglutition “the anterior belly of the digastric carries the hyoid bone, etc., upward and forward and the posterior belly upward and backward,” and says of the *platysma-myoides*: “Its anterior portion, the thickest part of the muscle, depresses the lower jaw.”§

HENLE says: “The platysma-myoides are not depressors of the jaw.”

* *Traité d'Anatomie Descriptive*. Troisième edit., tome deuxième. p. 182. Paris 1851.

† *Nouveau Traité Élémentaire d'Anatomie Descriptive*. p. 180. Paris. 1853.

‡ Todd’s *Cyclopædia*. Vol. III. p. 564.

|| *Ibid.* p. 563.

¶ Gray’s *Anatomy*. 2d American Edition. p. 260.

§ *Ibid.* p. 256.

DUCHÈNNE says: "Its action being exhausted by the mobility of the integuments of the face, the neck and the chest, it has no longer sufficient strength to depress the lower jaw."*

CRUVEILHIER says: "The platysmas are sometimes unequal in strength."†

ZIEMSSSEN says: "The muscle is sometimes absent."

The absence of the platysma-myoides in some cases and its inequality in others proves that it is not of any consequence in depressing the jaw, which is a movement requiring great promptness and exactitude. It may be held between the thumb and finger, near the front of the jaw, and if care is taken to discriminate between it and the integument, it may be felt that the muscle pays no attention to the movement of the jaw.

The digastric muscle is set down as drawing the hyoid bone backward and forward in deglutition, and as depressing the jaw by acting as "a reflected cord." These services are inconsistent with each other and with the anatomy of the parts. If it were fixed so as to draw the bone backward and forward, it could not slide and be of service as a "reflected cord" sufficiently to lower the jaw. To do the latter the anterior belly should be inserted higher up the jaw, while a long unrestricted tendon of the muscle should run through a fixed loop on the lower border of the hyoid bone, which last should also be freed from the styloid ligaments, and be drawn down half-way to the sternum every time the jaw opened wide, and proportionally for less opening.

* De l'Electrisation Localisée. p. 380. Paris. 1855.

† Traité d'Anatomie Descriptive. Troisième edit., tome deuxième. p. 166. Paris. 1851.

In respect to the united action of both bellies drawing the head backward, it is only necessary to say that the origin of the digastric is partly in front of a line drawn across just behind the condyles of the occipital bone; it could not, therefore, draw the head back appreciably even if its insertion were directly under its origin. It is consequently a mistake to suppose it can do so when its direction forward is so nearly horizontal. In fact this muscle is the great agent in drawing the head *forward*. The posterior belly slants down to the hyoid bone, but the anterior is nearly horizontal in its course, and when the muscle acts it tends to the line of its attachments by drawing or endeavoring to draw the hyoid bone upward unless the jaw is much depressed, when, as the muscle is straight, or nearly so, it has no power to raise the hyoid bone. But in several important services the digastric acts in concert with the omo-hyoid. In this way the muscles passing from the hyoid bone to the front of the jaw, including the anterior belly of the digastric, are as effectually antagonized as if a powerful muscle passed from each side of the hyoid bone to the opposite cervical vertebræ, with the advantage of greater length of muscle to contract, and easier adaptation to the movements of the jaw; and the muscles in front of the hyoid bone act, when necessary, in alternation with the omo-hyoid and the posterior belly of the digastric. More frequently, however, the anterior belly of the digastric acts with the posterior belly and the omo-hyoid, for they keep the head upright. In doing this the omo-hyoid muscle and the posterior belly of the digastric draw or hold the hyoid bone back, while

the anterior belly of the digastric brings in the chin, and the *temporal* and other elevators of the jaw draw the head forward; in this way the digastric acts on a long lever, as the head rocks on a centre, but a little below the entrance of the external ear. These muscles are always active during forward or backward movements of the body or head. They do for the head what the sterno-mastoid muscles do for the spine, and their action can be felt easily with the finger, in sitting down or rising up, etc. They are also powerful rotators of the head, and the action of the omo-hyoid is singularly quick in sudden turns of the head (as with the sterno-mastoid muscles) the digastric being useful in assisting to keep the hyoid bone up in place, it being held laterally by the aponeurosis and probably by the mylo-hyoid muscle.

If the end of the finger is placed just behind the origin of the *cleido-mastoid* during these movements, the omo-hyoid will be felt rising above the clavicle, and carrying the cervical fascia upward and backward; and if a finger is placed behind the mastoid process so as to cover the end of the digastric notch, the digastric muscle will be felt acting in concert with the omo-hyoid, and the anterior belly can be felt between the jaw and hyoid bone. The peculiar attachment of the digastric can now be appreciated, as the hyoid bone is left sufficiently free in its various movements, although it is at the same time the centre of control and support to the head. The importance of this support to the head can hardly be over-estimated, for the weight of the head beyond the atlas must be balanced. This the digastric and omo-hyoid muscles do effectually by acting upon

the jaw, which is a lever, in length about two-thirds of the height of the head above the atlas. The points from which these muscles act are the mastoid process and the shoulder; the vertex of their angle being in the hyoid bone, from whence they draw in the chin; in this direction they are very active and powerful. They not only balance the head in locomotion and leave the other muscles free to act in deglutition, vocalization, and articulation, but give them important assistance.

The following quotations show the opinions entertained as to the action of the muscles which move the lower jaw :

GRAY's *Anatomy* says: "The temporal, mastoid and internal pterygoid raise the lower jaw against the upper with great force. The two latter muscles, from the obliquity in the direction of their fibres, assist the external pterygoid in drawing the lower jaw forward upon the upper, the jaw being drawn back again by the deep fibres of the masseter, and posterior fibres of the temporal. The external pterygoid muscles are the direct agents in the trituration of the food, drawing the lower jaw directly forward, so as to make the lower jaw project beyond the upper. If the muscle of one side acts, the corresponding side of the jaw is drawn forward, and the other condyle remaining fixed, the symphysis deviates to the opposite side. The alternation of these movements on the two sides produces trituration." *

TODD & BOWMAN's *Physiological Anatomy*, part iii.

* Gray's *Anatomy*, Descriptive and Surgical. 2d American Edition. p. 252. Phila. 1865.

p. 539, says : "The *external pterygoid* neither raises or depresses the lower jaw."

My own views as to these muscles differ materially on some points from those expressed in these quotations. The position of the *masseter* is too well known to need particular description. The fibres of the deep portion have a more perpendicular direction than those of the superficial portion, the last passing backward as much as downward. The deep portion draws the jaw upward and backward, the superficial portion upward and forward. The *internal pterygoid* has the same general direction as the superficial portion of the *masseter*, excepting that as it arises from the pterygoid fossa it passes considerably outward to reach its insertion on the inner side of the ramus and angle of the jaw. It has, therefore, not only the upward and forward motion of the superficial portion of the *masseter*, but also lateral power over the jaw.

These muscles not only raise the jaw and teeth, when cutting with the incisors and crushing with the molars, but are also the main movers of the jaw in trituration. In cutting they bring the jaw forward bodily, in trituration they exert more forward and lateral action on one side than on the other ; by this the jaw is thrown over to the opposite side and then *drawn in and carried out continuously on that side*, and not carried over to the other side. It is a mistake to suppose that trituration of the food is effected by the alternate action of the muscles of both sides. When the jaw and teeth are perfect, the teeth of one side only are used, until the muscles tire, perhaps, and then those of the other side are resorted

to. If the teeth are tender, badly placed, or deficient on one side, trituration is performed on the other only.

The *temporal* muscle, which covers so large a portion of the side of the head, and is strongly inserted into the inner surface, apex and anterior border of the coronoid process of the jaw, pulls its insertion upward and backward, and assists the *masseter* and *internal pterygoid* muscles in cutting, crushing and triturating the food.

The *external pterygoid* is a short, thick muscle, which arises from the pterygoid ridge on the great wing of the sphenoid, and the portion of bone included between it and the base of the pterygoid process, from the outer surface of the external pterygoid plate and the tuberosity of the palate and superior maxillary bones. It arises in two portions separated by a short interval; they both pass outward and backward and are inserted into a depression in front of the neck of the condyles of the lower jaw, and into the corresponding part of the interarticular fibro-cartilage. The separate portions join and form one muscle previous to their insertion; the middle fibres being horizontal, but as the origin of the muscle is very wide vertically, the upper portion descends in passing back, while the lower ascends. This strong and beautiful muscle has, from its peculiar situation, great influence over the jaw. The origin being more internal than the insertion, gives the muscle control over the condyles laterally, by which they are held firmly in the glenoid cavities, and the great strength of the muscle tends to keep the condyles from being driven back by falls, or blows upon the chin, which otherwise might occur easily, as the glenoid fossæ are very shallow.

A more prominent service of this muscle is when it brings the condyle forward either on its own side alone, as in trituration, or with its fellow of the opposite side, as in cutting by the incisors. In these movements it acts in concert with other motors of the jaw. To consider it especially the triturating muscle is no more correct than to suppose that when triturating with a pestle in a mortar the thumb and forefinger (which are further from the grinding surfaces) are the triturators rather than the fingers below.

The *external pterygoid* muscle controls the upper end of the jaw in concert with the *temporal*, while the muscles attached to the body have especial control below, and by the concerted action of all, power and steadiness are secured in the complicated movements of the jaw, and of the lower teeth against the upper. The *external pterygoid* muscles have one office peculiar to themselves, that of holding the condyles fixed in any part of the glenoid cavities, to which they may be drawn in movements of the jaw. For this service they are admirably fitted by the great width of their origin, which enables them to brace the condyles so firmly against the parts above and in front of them, that the jaw is fixed, even when wide open, as firm as if the condyles were hinged in that position.

The *eminencia articularis*, the rounded projection which forms the front of the glenoid fossa, is indispensable to this fixation of the condyle, and as the condyle in coming forward mounts this eminence, the jaw, while going down in front, is also carried down bodily, by which the back teeth of the lower and upper jaws

are widely separated. These advantages are gained while the centre upon which the jaw turns is three-fifths down toward the angle. This may be tested by placing the hand and wrist around the back of the neck and applying the end of the little finger to the back of the ramus, and finding the point upon which it turns, which is probably near the insertion of the internal lateral ligament. By this arrangement the jaw is opened promptly and widely, without interfering with the parts behind, which would be injuriously pressed upon if the condyle remained still and the angle went back far enough to open the jaw wide.

The *external pterygoid* is now to be spoken of in a service in which the action of the muscle is greater in range, frequency and importance than in any other, and in which it has never before been recognized, *that of opening the mouth*. This muscle antagonizes the temporal, masseter and internal pterygoid muscles, and is, especially by its lower head, the *depressor of the lower jaw*. It does this alone when necessary, without assistance from any other muscle. This may be proved by bracing the arm against the breast and applying the thumb firmly to the chin; or better, by placing the jaw flat on the mantel, or any fixed support, then on opening the mouth the head will go backward, being drawn back by the external pterygoids whose insertions in the condyles are fixed by support of the jaw.

The action of the external pterygoid muscles in opening the jaw is similar to their action when the jaw is brought forward to cut with the incisors, the difference in effect being produced by other muscles; the tempo-

als probably act similarly in both movements. The masseters and internal pterygoids, however, must relax in the opening of the jaw instead of assisting to carry it forward as in cutting, while the digastrics, which relax in the forward movement of the jaw, undoubtedly assist to draw the chin back in gaping, vomiting, and in very wide opening of the mouth when voluntary. When not otherwise employed, it is probable that they always assist in opening the jaw, as they are admirably fitted for carrying the chin back, when the condyle is going forward. It is not so clear that they could carry it back readily if the condyles were not at the same time pulled forward. For, when the chin points down very much (as in some persons even with the jaw closed) the digastric muscle forms but a slight angle at the loop, and decided action of it in such cases would perhaps tend to keep the condyles of the jaw back in the glenoid cavity from the start, or soon after, as the opening of the jaw would straighten the digastric so much that it would have but little power to carry the chin back. Even in cases where the anterior belly of the digastric ascends from its loop to the chin, so that it has some vertical direction to favor it, and supposing it to be assisted by strong back fibres in the mylo-hyoid muscle, it is not possible that the condyle could release itself from the *eminencia articularis*, and unless it did so and came forward, the jaw could open only to a trifling extent, for it would act as if hinged in the glenoid fossæ. But with the external pterygoids drawing the condyles forward, the jaw opens, as upon a centre in the ramus, and the question arises as to what the jaw really turns upon.

The masseter and internal pterygoid muscles hold the angles very much as if a sling were passed around them, and if it were not for the angle going back it might be said that the jaw turned down upon the centre, supported by these muscles in connection with the *stylo-maxillary ligament*, which is also inserted into the angle of the jaw. Under all the circumstances the insertion of the *internal lateral ligament* around the inferior margin of the dental foramen marks the centre upon which the jaw opens with sufficient exactness. This ligament is a thin aponeurotic expansion, which descends perpendicularly from the extremity of the spinous process of the sphenoid bone, and cannot properly be considered the special support of the jaw in its downward and upward movements. It is more likely that the pterygo-maxillary ligament also influences the movement, and that all the ligaments and muscles inserted into this part of the bone are instrumental in determining the centre upon which the jaw opens.

The shape of the jaw, whether congenital, or modified by age or accident, may also vary the location of the centre somewhat; but at all ages the condyles must come forward to open the jaw effectually. This can be done only by the *external pterygoid* muscles, whose special office is to move and also fix the condyles, and in connection with the temporal and other elevators, the jaw also. In this way only can the digastrics and associate muscles act efficiently in their most important functions, otherwise they would be disturbed by undue movement of the jaw. In certain cases, however, these

muscles, as before stated, assist in moving and holding the jaw.

When the *external pterygoids* throw the jaw wide open, the chin is much below the hyoid bone, but controlled by the anterior bellies of the digastric muscles, the hyoid bone being fixed by the posterior bellies and by the *omo-hyoid* muscles, which can now be felt in action. Consequently the three extremities of the jaw, the chin, the angle, and the condyle, have each diverging or converging muscular support. The *digastrics* go to the chin, the *internal pterygoids* go to the angles, and the *external pterygoids* to the condyles. This arrangement of the muscles in connection with its ligaments holds the jaw firm in all its complicated movements.

It has been shown that the *sterno-cleido-mastoid* muscles are not merely rotators of the head, but that they give anterior support to the atlas, while the *splenii* and other muscles give posterior support, and that in combination they support it laterally. This support is so complete that the head is held securely in all positions. The muscles which give form to the neck, and support and move the spine and head, are so arranged as to leave the front of the spine free for the tongue, larynx, and trachea, with their special muscles, etc., and for nerves, blood vessels, and glands of prime necessity.

These important parts are shut in and protected by the lower jaw, which gives attachment to muscles indispensable to those organs in the performance of their functions, while its own movements are in strict subordination to them. By this respiration is secured from

interruption at all times, and occasionally made tributary to vocalization and articulation, and the vocal tube modified and moved with wonderful delicacy and energy in its participation in these functions, and in accordance with those of mastication and deglutition.

The lower jaw is also the great lever by which the head is held upright.

These explanations of the physiological action of the muscles which control and influence the lower jaw, prepare the way for the diagnosis of its fractures, upon which I purpose to write hereafter.

ART. II.—*On the Treatment of Malarial Fevers by the Subcutaneous Use of the Sulphate of Quinia.* By E. C. SEGUIN, M. D., late Resident Physician New York Hospital.

QUINIA seems first to have been subcutaneously employed by Dr. Chasseaud of Smyrna, who in 1862 reported one hundred and fifty cases of malarial fever thus successfully treated. He claimed greater rapidity of action and economy in the use of a costly medicament as the advantages of the new plan. About the same time a similar attempt was made in France by Goudas,* who published fifteen cases, and Moore† used Chasseaud's method in India. During the winter of 1864-5, Dr. Maury‡ treated some twenty-five cases

* L'Union Médicale. 1862.

† Lancet. August 1, 1863.

‡ American Journal of Medical Sciences. Oct. 1866. p. 371.

of intermittent fever in the rebel hospital at Greenville, Alabama. In 1865 Mr. Craith* of Smyrna continued to give quinia hypodermically with flattering and constant success, while Davigne in France, Eulenberg† and Lorent‡ in Germany, were making some few successful experiments.

This method was first tried in the New York Hospital by Dr. G. M. Smith, the attending physician then on duty, in a case of congestive remittent fever, during September, 1866. It has since been applied to all varieties of malarial fever, and may now be said to be a part of the regular practice of the house.

The solution of sulphate of quinia used in the hospital is made according to the following formula :

Take of subsulphate of quinia, 60 grains ; dilute sulphuric acid, 40 minims ; distilled water, 1 fluid-ounce. Mix. Make a solution and filter with the greatest care.

Thirty-five minims of this are equal to four grains of quinia.

Or the solution may be varied by the addition of four or six grains of sulphate of morphia, which combination renders the injection less painful.

[The mode of giving an injection of this solution by means of an ordinary hypodermic syringe, has been fully detailed in the August number of the JOURNAL, p. 403.]

At first less acid was used for fear of causing irritation, but it was soon discovered that the real causes of

* Letter to Med. Chir. Society of London. December. 1865.

† Die Hypodermatische Injection der Arzneimittel, etc. Berlin. 1865.

‡ Die Hypodermatischen Injectionen nach Clinischen Erfahrungen. Leipzig. 1865.

abscess were the undissolved crystals of quinia and the particles of dust which imperfect closing of the bottle allowed to drop into the fluid. It was also found that an excess of acid removed the most fertile source of danger, while it but slightly increased the pain of administration. In reality, there is but little more acid in the above formula than in Moore's, for he used twelve drops of the *pure* acid to dissolve thirty grains of quinia in a half-ounce of water. Dr. Maury, of Alabama, employed a solution, sixty minims of which contained eight grains of the salt.

From the fact of sailors being received into the institution as patients, malarial fevers form a large part of the practice of the house. These cases come in mostly from the various ports of our own Atlantic and Gulf coasts, and from Cuba, the West Indies, Mexico, and Central America. In many of these ports (Aspinwall, Mobile, and Wilmington being the worst) the poison is most intense, and produces not only severe attacks of fever proper, but also deep and long-continued cachexia. Congestive cases come in during the summer and autumn from the three above-named places, and are of a very fatal character. These peculiarities of the fever necessitate the exhibition of much larger doses of the anti-periodic medicine than are usual in Northern practice. Besides the amount of quinia required for the breaking of the attack, the prolonged use of small doses combined with iron are resorted to, in order to correct the cachexia. The general treatment of these cases has been as follows for the past few years :

A simple intermittent of the tertian type was cut

short by the giving of three doses of five grains of quinia two hours apart, and so calculated that the same interval of time should intervene between the last dose and the expected chill.

A quotidian usually required four such doses given in a similar manner. In both forms, subsequently to the stoppage of chills, some six grains of quinia were given daily, together with some form of iron;* on the seventh, fourteenth, and twenty-first days (counting from date of last paroxysm) five grains extra were exhibited about two or three hours previous to the chill time.

Simple remittent fever was treated by means of two grain doses of quinia given every two hours until the headache became very severe or the fever ceased. In many cases the medicine could be continued for twenty-four or forty-eight hours, when the force of the fever being broken, the doses were gradually reduced until in convalescence two grains three times a day combined with a chalybeate were ordered, and continued up to complete recovery. Severe cases, simple, or tending to the congestive form, were treated by hourly doses of two or five grains pushed until cinchonism became apparent. Of course, it is understood that this account only relates to the quinia, its mode of administration, and quantity employed, making no mention of the numerous other means resorted to, such as purgatives, local applications, stimulants, and food.

* The "black mixture," so much used in the hospital as a tonic, is made according to the following formula: Ferri ammon. citrat., 16 grains; tinct. chincon. co., 1 ounce; aquæ, 3 ounces. M. Half an ounce at a dose.

When it was decided to use the hypodermic method it became necessary to work out rules for giving the remedy, both as to time and quantity, no explicit directions being found in any of the published accounts at hand. One single statement there was to serve as guide, that one grain of quinia under the skin was equivalent to five or six by the mouth (Moore). In the course of a few experiments it was discovered that this was far too high an estimate, at any rate for the class of cases coming from the South. It was observed that four grains of the medicine were needed to break an attack of tertian fever, and that fully eight were required for a quotidian. In congestive cases, of course, the amount injected varied according to the severity of the attack, and it was always given upon the estimate that one grain subcutaneously equalled four grains by the mouth. By following the experience gained while giving mouth-doses, the injections were at the first given two hours before the time of the expected paroxysm, and this was found so successful that the rule is now invariably followed. Where two injections were required, if there was time to spare, four grains were given four and the other dose two hours before the expected chill. If the time was too short, both injections were given at once.

The following histories will illustrate the working of the method in intermittent fever:

CASE I.—B——, a seaman, æt. 28, admitted June 22, 1867. Comes from Florida and has had quotidian chills for eight days; paroxysms at noon, retarding a little. On admission is rather feeble. June 23.—

To-day had a hypodermic injection at 10 A. M. (four grains), but at 1 P. M. had a severe chill. 24th.—No chill to-day. This morning had four grains at 10 A. M., and the same at 11 A. M. Ordered *mist. ferri et cinchon.* of house, half an ounce, thrice daily. July 1.—Yesterday had four grains under the skin at 11 A. M. No chill. Continue *mist. ferri.* 3d.—Is sent out well.

CASE II.—V——, a seaman, æt. 19, received July 17. Comes from Savannah and has had an attack of tertian ague twelve days. Last chill occurred at 4 o'clock P. M., yesterday. General condition is fair; bowels are open. July 19.—Yesterday had four grains of quinia under skin at 1 P. M. (as chills anticipate a little), and had no paroxysm. Ordered *mist. ferri et cinch.*, half an ounce thrice daily, and as there is some cachexia, *quin. sulph.* two grains thrice daily. 24th.—Yesterday being weekly anniversary of chill, had four grains subcutaneously at 1 P. M. Is much improved in appearance and has had no chills. Discharged cured.

CASE III.—W——, a sailor, æt. 22, admitted April 23, 1867. Patient has had a quartan intermittent fever contracted in East Indies, fifteen months, off and on. Has never been free from chills for more than six weeks at one time. He states that from the first every chill has been accompanied by a crop of nettle-rash. On admission, general condition is pretty good, though the spleen is a little enlarged. On 21st had a severe chill at 3 P. M. April 25.—Yesterday, at 3:30 P. M., had a severe chill. About twenty minutes before attack he called attention to an eruption, clearly of urticaria, covering the entire body, and causing intense itching and

burning. His pulse was then accelerated and the axilla heat was about 103° Fahrenheit. To-day takes quin. sulph. two grains, thrice daily, and the tonic iron and cinchon. mixture. 28th.—Yesterday had quinia, 4 grains, hypodermically at 11 A. M. and 1 P. M., but chill occurred about 5 o'clock, accompanied, as usual, by nettle-rash. Continue small mouth-doses and mist. in interval. May 1.—Had injections of four grains at 10 A. M., 12 M., and 2 P. M. yesterday, and escaped chill. Continue tonic treatment. May 26.—Patient has had no return of chills. Had quinia, four grains, on anniversary days (May 4, 11, 18, and 25), and has kept up black mixture. Region of spleen has been occasionally painted with tr. iodine. Since 14th inst. has also taken a little of Fowler's solution. 27th.—Is discharged at request, nearly well.

These three cases give a correct idea of the general management of the common intermittents. In many instances no quinia was given after the last chill, excepting the four grains on anniversary days, thus making an immense saving in the use of the medicine, not more being employed in the entire course of many cases than was formerly needed to avoid a single paroxysm. Up to August 6, thirty-five such cases have been treated with perfect success.

In the remittent form, the experience is small and not satisfactory. In two cases, from one to four injections were given in the remissions but with little effect on the fever, while the number of injections caused considerable annoyance to the patients. Although the experiment has not been repeated in the hospital, yet further

trials should certainly be made, when a time and mode of giving the medicine may be found which shall lead to success.

In about ten congestive cases the results have been satisfactory, though, as usual, the mortality has been very great. In only one or two cases have the injections been used alone, being usually employed as an accessory to the ordinary treatment of quinia and whiskey given by the mouth. The following case, reported at the time, is an interesting one, by Dr. H. D. Bulkley* (the treatment of which was personally attended by the writer), and is worth reproducing here as illustrative of the new method:

"—, a stout, well-developed sailor, forty-four years of age, was brought into the hospital at eight A. M., October 8, in a state of collapse from a chill the night before, from which he had not rallied. His skin was cold and clammy; pulse could not be felt at the wrist; considerable dyspnoea and anxiety, with some laryngeal hoarseness; tongue slightly coated, white, pale, and quite cold. He was conscious and rational, but could only speak in a whisper, and there was great thirst. As the stomach was not irritable, half an ounce of whiskey was given every half hour, and ice to allay the thirst. The treatment was commenced by a stimulating enema, dry cups to chest, and sinapisms to the nape of the neck and legs; and to avoid irritating the stomach, and for speedier effect, quinine in solution was injected into the integuments of the upper part of

* New York Medical Record. Vol. 1. p. 489.

the chest—four grains at 8:20 A. M., 9:20 A. M., 11 A. M., and 1, 2, and 3 P. M.; and about the middle of the day three doses of five grains each were given by the mouth at intervals of half an hour; but as this disturbed the stomach it was discontinued. In the afternoon dry cups were again applied, the use of stimulants being continued. At 4:30 and 6 P. M. the hypodermic injections were again given. At 8 P. M. quinine was given by the mouth, five grains every hour. The amount of quinine given hypodermically from 8:20 A. M. to 6 P. M. was therefore in all thirty-two grains, estimated to be equivalent in therapeutic value to a little over 2 drachms by mouth.

“At 3 A. M. the next morning (October 9), at the end of nineteen hours, his pulse was perceptible, and he became comfortably warm. His voice was now stronger; but it indicated, as well as the breathing, laryngeal trouble. Nothing abnormal, however, could be seen in the throat, nor could anything be felt by the finger. The quinine was continued every hour, and the whiskey reduced to half an ounce every hour, and beef-tea ordered freely during the day. At 8 P. M. he had fully rallied, though there was considerable dyspnœa and restlessness, and quinine was reduced to five grains every two hours. In thirty-six hours the patient had taken thirty-two grains hypodermically and three drachms by mouth of quinine, estimated to be equal in therapeutic value to 248 grains of the salt. He progressed favorably until the 14th (five days), reaction having been fully established; and both the quinine and whiskey having been reduced in quantity.

Ecchymosis had taken place at one or two points where the injections had been made. On that day, however, he became worse. Obscure symptoms occurred, made up of laryngeal obstruction and pulmonary and cerebral congestion. Stimulants and quinine were now stopped, and two or three ounces of blood taken from the nape of the neck. At midnight he became quite restless, and persisted in rising to have a stool near the bed, refusing to use the bed-pan, when he almost instantly sank back and died, apparently from syncope. No autopsy could be obtained."

This patient was undoubtedly saved from death during the algid period by the quinia, and he only died from the effects of the secondary disorganization of the blood so common after severe attacks of the fever. It is noteworthy that he never had a symptom of cinchonism.

In conclusion, a word as to certain consequences likely to result locally from the injections. Abscesses and phlegmonoid swellings have been observed in the hospital. In all, out of a very large number of injections (one patient receiving over one hundred), only six abscesses occurred, and not one of these after the middle of last January. In each instance the result was attributable to the introduction of insoluble particles along with the fluid. Maury reports two abscesses out of twenty-five cases, and Moore the same number out of thirty. When trouble was about to ensue, the swelling normally consequent upon the injection increased after the second day, and redness; together with a beating pain, were noted. The centre

of the swelling was usually soft from the first, and at that place the pointing of the pus occurred. These phlegmons were first poulticed and then opened early by a free incision. No difficulty was observed in their healing.

Since January there have occurred a small number (not more than six) of what have been called phlegmonoid swellings. In these, the swellings, redness and heat were present, but the beating pain was not; the patients complaining only of a sensation of burning. As early as the soft centre became distinct an exploring-needle was introduced, letting out a small quantity of serum; after which the swelling was again poulticed. In all these cases complete resolution occurred.

In numerous instances the patients complained of temporary anæsthesia in or about the part where the injections were given; but the place of election in fever cases being the chest, abdomen, and back, no great inconvenience ensued. Ulceration, sloughing, and reflex nervous disturbance, were never observed, nor was cinchonism ever clearly produced.

ART. III.—*Treatment of Cancer by Acetic Acid Injections.* By FREDERIC D. LENTE, M. D., Cold-spring, N. Y.

MR. EDITOR: In a recent number of the JOURNAL you ask for information concerning the effect of acetic acid injection in this country, as a remedy for cancer.

I have tried it in two cases ; and, as I do not propose, at present at least, to repeat the trial, it will be as well to give you the results at once. We had some rather enthusiastic accounts of its success in England from its proposer, Dr. Broadbent, and a few others. But the trials by Mr. Cooke at the Cancer Hospital, London, and of Prof. Nussbaum, in Germany, do not, by any means, confirm these reports. In Germany it is termed the method of Prof. Thirsch ; and there, various fluids have been used ; solutions of nitrate of silver, chloride of sodium, and even pepsine. The only cases of its trial in this country yet published, at least that have fallen under my observation, are two from the Massachusetts General Hospital. In these, the solution (of acetic acid) used was much stronger than that recommended by Broadbent, and produced inflammation, abscess, &c. Dr. B.'s idea is to *kill* the cancer germs, without exciting more than a very moderate inflammation, and in my cases I endeavored to effect this result. I am induced to give the details of these cases at the risk of being tedious, because the cases heretofore published, except those from the Massachusetts Hospital, only give the *results*, and there is considerable discrepancy of opinion as regards the amount of pain suffered, its duration, and other important facts connected with the treatment. The two patients in the Massachusetts Hospital, above alluded to, left before the remedy could be fairly tested. Any plan which offers the slightest hope of improving upon the management of cancerous tumors, deserves a fair trial, and that such trial should have the widest public-

ity, in order that the profession may, from accumulated evidence, form an impartial judgment. It would be strange indeed if any chemical, injected into a heterologous mass, should so modify it as to render it less likely to contaminate the surrounding tissues, or the system, than removal by the knife, which goes entirely beyond the limits presumed to be affected by the injected fluid.

CASE I.—This was a case of scirrhus tumor of the left mammary gland in an unmarried lady about 60 years old, in good health, residing in the vicinity of West Point. I was called to her in March, 1867, to examine the tumor, and found it occupying the outer portion of the breast, not involving the nipple, and having a central depression where the skin was adherent to it. It had grown very slowly, had been attended by the peculiar pain of malignant disease, but not to any considerable degree. The axillary glands were perfectly intact. As I proposed to try the new treatment, I called in Drs. Head and Marsh, of the army, stationed at the Military Academy, to verify my diagnosis, which they did. I condense the following history from my note-book:

March 11.—To-day I punctured the central depression, and having passed the needle upward and outward into the substance of the tumor, injected a quarter of a drachm of a solution of acetic acid in water, 1 part to 3. I then passed it downward and injected the same quantity. It was difficult to pierce the central portion on account of its excessive hardness, and here it was impossible to force out any of the fluid; but the other

parts of the mass, though quite hard, offered but little resistance. Care was taken not to pass the instrument as far as the outer limit of the mass. Patient complained so piteously that, after giving a stimulant and anodyne without effect, I let her breathe a little Hoffman's anodyne, the only anæsthetic at hand, which had the desired effect.

March 14.—Patient states that she has had lancinating and burning pain in the tumor. This was so severe in the evening after the application that she inhaled ether. The redness and swelling very gradually increased until last evening, since which both have very rapidly diminished.

March 21.—There has been some increase of the inflammation, and a slight constitutional disturbance, which soon subsided. The part is now, to all appearance, except a slight circumscribed redness just above the depression, in the same state as before the operation. By measurement, however, the vertical diameter is a quarter of an inch greater, and its horizontal one-eighth less; its boundaries are so sharply defined that these measurements admit of very considerable accuracy. Put the patient under ether at her earnest solicitation, and injected a drachm of the solution in different parts of the mass, but one spot was so hard that several drops ran out of the puncture immediately on the withdrawal of the needle.

April 1.—For four days the inflammation and swelling increased, attended by lancinating and throbbing pain, not apparently of a very intense character. The skin covering the mass was of a dark purplish hue.

These symptoms have mostly subsided for three days past, but the mass is very sensitive on pressure, and there is a circumscribed purple discoloration at the inner and upper portion, and an obscure feel of deep fluctuation. The tumor extends now further toward the median line, but not so far toward the outside; so that the former *central* depression has been gradually approaching the outer border, and is now almost in contact with it. Put patient under ether and injected half a drachm of the solution in the outer half of the mass, distributing it equally in the upper and lower parts, special care being taken in every injection not to allow the point of the needle to penetrate quite to the confines of the tumor in order to avoid exciting inflammation in the cellular tissue around it, and thus complicate the procedure. A puncture with a narrow bistoury was now made at the point of fluctuation, giving vent first to a gush of arterial blood, and then to a small quantity of thin purulent fluid. The probe could be passed an inch or more in various directions, and the walls of the cavity had an irregular, indurated feel, different from that of a common abscess. Introduced a tent.

April 4.—Patient has had a good deal of sharp pain in the part of the tumor injected, and but little in the part containing the abscess, which discharges thin pus moderately. The skin assumed, as before, a dark purplish hue, and there was considerable swelling, extending down over the ribs to a slight extent, where there is now some œdema.

May 2.—The abscess healed gradually, and the tu-

mor presents now almost precisely the same character which it did at first, being perhaps a little thicker ; but the position appears to have changed since the nipple is now included in the mass, which was not the case at first, and the depression, which occupied the centre, is now at the outer border. As the patient is discouraged and rather worn out by the pain and confinement, and as the treatment does not hold out any flattering prospect of success, it was determined to-day, in consultation with Drs. Head and Marsh, to extirpate the tumor.

- May 3.—The operation was performed to-day. Dr. Head dissected the tumor and found no trace of the abscess except an ecchymosed spot of considerable size in the midst of fibrous and adipose tissue, with some cancerous tissue. This portion of the tumor had also much less of the true malignant character than the outer portion, as indicated both by ocular and microscopical inspection.

Aug. 13.—Patient is now quite well.

CASE II.—Epithelioma of Prepuce and Glans Penis.—Trial of Bromine and of Acetic Acid.—J. C., æt. 48, a tall, sinewy man, in good health until attacked by his present infirmity. Has had phymosis as long as he can remember. Eight years ago noticed a smarting and itching on one side of the *glans* near the *corona*, which steadily increased. Some months later the prepuce, at its orifice, became the seat of ulceration. The case progressed steadily and slowly in the usual manner, destroying the prepuce, and attended at first by very severe suffering and by the usual fœtid discharges.

The present condition of the part is as follows: The *glans* is exposed, and is but slightly and apparently superficially affected. It is surrounded and firmly overlapped at its upper and lateral portions by the thickened, ulcerated, and everted remains of the prepuce, which is curled over to such a degree that the edge of its integument overlaps and touches the sound skin of the penis. The prepuce below the glans, instead of being destroyed, is hypertrophied into a mass as large as an English walnut, indurated, and having the form, at most points, of convolutions folded deeply upon each other. The diseased mass, as a whole, is nearly as large as a duck's egg, and has the look, where ulcerated, of cauliflower excrescence, but a much firmer feel. The inguinal glands are not involved in the slightest degree. His health is much impaired, his appetite poor, and his nervous system shattered; he cries at times like a child, and has occasionally meditated suicide.

May 29, 1867.—Having witnessed the remarkable effects of pure *bromine* in almost immediately arresting hospital gangrene, when properly applied, after removal of the dead tissues, and having in mind the recent experiments of Wynn Williams, Dr. Routh, and others in London, with diluted bromine in cancerous affections, I determined to give the remedy a trial. As the action of bromine does not extend deeply into the tissues, I resolved to precede its application by the destruction of as much of the disease as possible. Accordingly, with the assistance of my partner, Dr. Barker, the patient being under the influence of ether,

I removed, with a bistoury, as much as possible of the mass. With a large cautery iron, at a white heat, I now freely cauterized the whole raw surface, and also the diseased portions of the glans. Before commencing to inhale the ether, the patient, with some agitation, handed me a bottle containing a drachm of strychnine, and desired me to *keep* it for him. It seems that he had been for some weeks meditating suicide, and his wife had repeatedly tried to get the poison from him.

June 5.—Says he has had almost no pain since the operation. He feels and looks “like a new man.” His appetite, previous to the operation very poor, is now, as he says, ravenous. The eschars all separated a day or two since, and cicatrization has commenced. Put the patient under ether, and with the assistance of Dr. Fisher of Bellevue Hospital, applied pure bromine thoroughly to all the raw surfaces, protecting the surrounding healthy tissues partly by collodion, and partly by lint smeared with cerate.

June 12.—The application was succeeded by only moderate pain, which subsided under an emollient poultice. Applied the bromine freely to-day without using ether. The application causing considerable pain, one-third of a grain of morphia was injected hypodermically.

June 15.—The bromine does not seem to penetrate to any depth; its effect is consequently so slow and uncertain that it is abandoned. I injected to-day half a drachm of a solution of *acetic acid* and water, one part to three, holding in solution also one-third of a grain of morphine. The injection gave quite severe pain.

June 25.—Some portion of the mass was destroyed by the *sloughing process*, but it now presents almost the same condition as before the operation. To-day, while under the partial influence of ether, a solution of acetic acid, one part to two, was injected into every part of the diseased prepuce, saturating it thoroughly; considerable of the fluid would run out at different points of the soft mass while being injected. The base is so hard as to render it difficult of penetration, and almost impossible to force in the fluid after penetration. The quantity injected held half a grain of morphia in solution.

June 30.—But little pain was felt after the operation, and there was almost no swelling. The most of the diseased prepuce has shrunk away to about half its former dimensions; the surface presents the same appearance. Under ether, the same operation is repeated to-day; a good deal of the fluid, as before, comes away in jets, at different points, except when the instrument is inserted into the dense tissue forming the base of the mass. The *glans* was injected to-day as well as the remains of the prepuce. The patient's general health continues much improved, and he has gone to work.

July 15.—It is very evident that the progress of the disease is not arrested; the only check to its growth has been produced by the sloughing caused each time by the irritating fluid; but, at all points, its malignant character is still distinct, and the glans is becoming still further involved. Patient is accordingly advised to submit to amputation.

ART. IV.—*Niemeyer's Views on Tubercle.** Translated and condensed by W. T. Lusk, M. D.

No subject in pathology needs so thorough a reform as that of phthisis. In this field pathological anatomy is far in advance of clinical medicine. The majority of physicians and clinicists of the present day hold fast to Laennéc's stand-point, that only one form of phthisis, viz., tubercular phthisis, is admissible. Up to the most recent times the proposition "that phthisis is a constitutional malady, never developed from an acute or chronic pneumonia, never from a bronchial hæmorrhage, and never from a neglected or latent catarrh," has been taught from the pulpits downward as undeniable truth, and has exercised in practice an unfavorable influence both upon the prophylaxis and treatment of the disease.

Laennéc's dogma, that every case of phthisis is caused by a new formation, and that caverns in the lungs are due to the softening and evacuation of this production, is based entirely upon an anatomical pathological hypothesis, which has since been fully refuted. The conclusions that Laennéc drew therefrom are consequently no longer tenable. The oft-reiterated assertion, that a catarrh, from which phthisis is developed, or the pneumonia and pneumorrhagia so frequently preceding phthisis, are not primary, but secondary, due to the irritation of tubercle, is a proof that practical medicine has almost entirely ignored the advances in pathological anatomy.

Laennéc's error did not consist in his holding tubercle for a new-formation, but in regarding such indurations of lung tissue as had an entirely different origin, as likewise products of a tubercular development. This confusion arose from looking upon the *cheesy metamor-*

* Felix v. Niemeyer's *Klinische Vorträge über die Lungen-Schwindsucht*. Von Dr. Ott. Berlin. 1867.

phosis of originally gray and transparent tubercle, as a special peculiarity of the latter, enabling us to decide with regard to its tubercular nature. Since Virchow has shown, however, that formations of most varied descriptions, and bearing no relation whatever to tubercle, undergo the same cheesy changes, this condition can no longer be regarded as necessary proof of tuberculosis. In the present state of science there is one kind of tubercle, *i. e.* miliary tubercle, and one form of tuberculosis, *i. e.* miliary tuberculosis. *That which has been termed since Laennéc infiltrated tuberculosis of the lungs is the product of chronic, and especially catarrhal, pneumonia.* Not only the doctrine of infiltrated tuberculosis, but that of the *miliary form*, too, has received a blow from the progress of pathological anatomy. Many formations, presenting at first sight the appearance of miliary tubercle, and formerly regarded as such, prove upon more careful investigation to be transverse sections of bronchi, with cheesy contents, or surrounded with cheesy infiltrated alveoli. Excluding such sources of error, we reach the conclusion that *not a single tubercle is found in very many cases of phthisical lungs*, and that the thickening and destruction of the lungs are due solely to indurating and destructive forms of pneumonia. Virchow, however, surely goes too far in asserting that almost all the pretended miliary tubercles are bronchitic, peri-bronchitic or pneumonic collections. It is in no wise rare in phthisical lungs, also, to meet with the same gray transparent knots as are scattered in great numbers through the lungs and other organs in acute miliary tuberculosis, and regarding the nature of which there cannot well be any doubt. Apart from tuberculosis of the bronchial mucous membrane, I cannot admit that tubercle is but *rarely* found in the lungs of phthisical patients.

On the other hand, the relation of tubercle to thickening and destruction of the lung, in those cases in which they are present together, is in the rule quite different from what is taught as the usual one. *Tubercle*

in most cases, is unmistakeably a late development, and complicates phthisis in an advanced stage. In only a comparatively small number of these cases, in which tubercle is found in the lungs along with the products of chronic pneumonia, do the post-mortem appearances bring us to the result, *that the development of tubercle precedes the pneumonic processes.* In this form, which alone is properly termed tubercular consumption, the development of tubercle appears as a rule, as Virchow has shown, to proceed from the mucous membrane of the bronchi.

The pneumonia lying at the bottom of the cheesy infiltration and formation of vomicae in the lung, does not differ from other forms of pneumonia. On the contrary *every form of pneumonia, under certain circumstances, may terminate in cheesy infiltration, while in no form is this the sole and constant termination.* To be sure there is a great difference in certain forms of pneumonia as regards the frequency with which the products of inflammation, instead of becoming absorbed, are changed into a thickened cheesy mass. Thus, in croupal pneumonia it is rare, while it is pretty frequent in acute catarrhal and almost the rule in chronic catarrhal pneumonia.

There is no doubt that *croupal pneumonia* may give rise to cheesy infiltration of the lungs. The sudden and violent invasion of the disease, the symptoms and cause of the first stage, the conduct of the fever and extension of the solidification, agree so entirely in many cases, where acute lobar pneumonia has left behind cheesy infiltration, with the well-defined features of ordinary croupal pneumonia, that one can hardly doubt their identity. This metamorphosis of the products of croupal pneumonia is observed not only in persons who have already tubercle, or old cheesy collections and vomicae in the lungs, but quite as frequently in those who previously enjoyed good health, and especially in those who were suffering from emphysema of long standing.

Acute catarrhal pneumonia arises from an acute catarrh of the finest bronchi extending into the alveoli. The

lung tissue is solidified, not by fibrinous exudation, but by filling up of the alveoli with young, round cells. Under favorable circumstances these undergo the same changes as the fibrin in croupal pneumonia; in a few less favorable cases, the cell elements keep accumulating in the alveoli, the fatty metamorphosis, initiated in them, remains incomplete, the cells lose their rounded form, and shrivel up from loss of water into irregular shapes; while, at the same time, with the naked eye we notice the transformation of the shining, gray or reddish-gray, homogeneous thickening of lung tissue into a dull, yellow, cheesy mass. Acute catarrhal pneumonia occurs most frequently during measles or whooping-cough. Cases of death sometimes observed after these diseases, and attributed to tuberculosis, have, for the most part, their real ground in the termination of an acute catarrhal pneumonia arising during the disease. It is by no means rare, however, for true primary catarrh to spread from the bronchi into the alveoli, and occasion a more or less extensive solidification of lung tissue. This form, too, may terminate in cheesy infiltration, and rapid disintegration of lung tissue, when the patient dies shortly with the symptoms of phthisis-florida, or galloping consumption. The termination of acute catarrhal pneumonia in cheesy infiltration, occurs by no means exclusively in persons who have already tubercle, cheesy collections, or vomicae in the lungs, but in persons with previously healthy lungs. Of course it occurs much more frequently in persons with weakly, delicate constitutions, who possess slight powers of resistance to deleterious influences, and who consequently fall sick easily, while in them recovery is a slow process. Such persons display usually, in inflammatory disturbances of nutrition, a decided disposition to yield products abounding in cells—a peculiarity intimately connected with a disposition to cheesy transformations. Of course those who have already had attacks of catarrhal pneumonia, which have left behind cheesy collections, or caverns, are in far greater

danger of subsequent attacks, ending in the same way, than those whose lungs were previously in a sound condition.

Chronic Catarrhal Pneumonia is one of the most frequent diseases. I regard the name, chronic catarrhal pneumonia, as the only one appropriate to designate the thickening of the lung, which has been specially described as infiltrated tuberculosis, and gelatinous or tubercular infiltration, which has lately, with quite as much impropriety, been termed tubercular or cheesy pneumonia. This lobular, and by no means rarely lobar infiltration, having the color and lustre of frogs' eggs, depends not only upon the accumulation of young cells in the alveoli, but, with rare exceptions, upon the extension of a chronic catarrh, giving rise to a secretion abounding in cells into the capillary endings of the bronchi, and thence into the air-cells. We can easily understand why this form should oftener lead to cheesy infiltration than acute catarrhal or croupal pneumonia. The slow and insidious course of the disease, resulting in a constantly increasing accumulation of cells in the alveoli, and perhaps also in the aspiration of cell-elements from the finer bronchi, brings about as a result, in a purely mechanical way, that the cells, pressed against one another, mutually interfere, shrivel and suffer necrobrosis. However, as occasional exceptions, where the disease terminates before the accumulation of cells in the alveoli has reached a high point, fatty metamorphosis, liquefaction and re-absorption may take place. The fact, in isolated cases, of the entire disappearance of more or less solidification in the lungs of consumptives, is by no means surprising, when one has once become emancipated from Laennéc's doctrines. Where chronic pneumonia occurs in previously healthy lungs, it forms the first link in the chain of nutritive disturbances, which give rise to phthisis—where tubercle, indurated spots, old cheesy collections and caverns previously existed, it contributes in an important degree to their further extension.

Cheesy infiltration of lung tissue, from whatever cause, does not by any means lead in most cases to an *immediate disintegration of the cheesy spots*, and the formation of caverns. These events depend, apparently, not alone upon the crowding of the cells in the alveoli, but upon the pressure on the surrounding tissues and vessels, whereby the walls of the air-cells, becoming deprived of nutritive fluids, perish likewise. Where the production of cells is not such as to lead to any considerable compression of the walls of the air-cells, and their nutritive vessels, the cheesy mass may gradually become more and more dense, and the shrivelled, atrophied cells fall into a detritus from which the organic substances continue to disappear, while the cretaceous salts are deposited in their place until, at length, a chalky or mortar-like concretion remains behind. In other cases the imperfect fatty metamorphosis may become complete, and the shrivelled cells fluidify, so as to be capable of absorption. In either case there takes place in the lungs an *extensive production of connective tissue*, forming capsules around the chalky collections, and filling up the places from which the fluidified cells have disappeared. As the shrinking connective tissue takes up much less room than healthy parenchyma, the lungs become smaller, the thorax sinks inward, and as this sinking inward takes place within narrow limits, the bronchi become dilated into long and round cavities.

From this representation it will be seen that I do not regard chronic pneumonia—and, since consumption is especially caused by chronic pneumonia, that I do not regard consumption—as a particularly dangerous disease. In fact I do not hesitate to pronounce that the described inflammatory processes have a decided tendency to recovery, and, under suitable treatment, persons with extensive solidification and large vomicæ in the lungs may often be kept for a long period in an endurable condition, or even in relative good health. *The greatest danger of most consumptives is that they may become tuberculous.*

Laennéc, deriving the cheesy knots and vomicae in the lungs from antecedent tuberculosis, was logical in explaining the fresh miliary tuberculosis which he found in connection with the old morbid products, as a *secondary eruption of tubercle*. We, however, being persuaded that, with rare exceptions, the cheesy infiltrations and vomicae are the products of pneumonic processes, are compelled to term an accompanying development of tubercle as a *complication*. The frequency of tubercle in lungs containing the residues of chronic inflammation contrasts in so striking a manner with its rarity in lungs free from cheesy infiltrations and vomicae, that the complication cannot be accidental, and we are compelled to assume a causal connection between them. This assumed connection becomes a certainty, when we consider the peculiar distribution of tubercle in the lungs of phthisical patients. Where few are present, they are found in the immediate circumference of the vomicae or cheesy collections, where they are scattered through the entire lung, as a rule there is no mistaking the fact that the extension has proceeded from those points, because there the most numerous, and apparently the oldest, knots are present. We must add to the statement that all forms of pneumonia may lead to cheesy infiltration and the formation of vomicae, that in these cases the danger of the addition thereto of tuberculosis is just the same, whether the *cheesy products and vomicae are the residue of a croupal or catarrhal pneumonia*. The reason chronic catarrhal pneumonia leads more frequently to tuberculosis lies solely in the fact that its products more frequently undergo the cheesy metamorphosis.

It is a further memorable fact, that almost without exception, if tuberculosis appears in previously healthy lungs, *cheesy products, owing their existence to the most varied morbid processes, are present in other organs*. Virchow, who lays much less stress upon this point than we do, acknowledges that a miliary eruption is indeed rare without the præexistence

of cheesy nodules. These cheesy products (in other organs than the lungs) to which an eruption of tubercle is added, are only rarely the residue of tuberculosis or of an antecedent process analogous to pneumonia. In the rule they consist of lymph glands enlarged by cell hyperplasy, which have afterward undergone cheesy degeneration, of the residue of pericardial, pleuritic, or peritoneal exudations, or of the cheesy products of chronic inflammation in the joints or bones. Buhl, who retains the old designation of tubercle for the cheesy masses, rightly asserts *that every tissue and every exudation may become tubercle in a certain stage of its retrograde career.*

This comparatively frequent coincidence of tubercle in the lungs with the presence of cheesy products in other organs, cannot be regarded as accidental. Physicians know too well that in previously healthy men, cheesy thickening of an old pleuritic exudation, traumatic inflammation of joints, or any other accidentally acquired malady which leaves behind cheesy products, are dangerous foes, because they lead in numerous instances to the development of tuberculosis in the lungs. The eruption of tubercle usually occurs at the time the cheesy knots begin to soften. As a rule, the connection between tuberculosis, and the preceding nutritive disturbance, is by no means directly dependent upon a common origin from the same fundamental disorder, but *indirect, brought about by the cheesy metamorphosis of the pneumonic products*; or to state our proposition in a more general way, *tuberculosis is in most cases a secondary disease, originating in an unknown manner through the influence of cheesy, morbid products upon the organism.* But the opinion of the *constant* dependence of tuberculosis upon the cheesy products of disease is one-sided and exaggerated.

The view generally entertained, that lung tuberculosis leads to *secondary tuberculosis of the bowels*, rests upon a false interpretation of the morbid appearance. To be sure we often find caverns in the lungs, and ul-

cers in the bowels, i. e., *a complication of consumption of the lungs and bowels*. So, too, in many cases, where in the lungs, beside caverns and cheesy collections, miliary tubercle is present, the serous membrane around the ulcerations of the intestines is covered with tubercle. But it does not follow that the bowel affection is secondary to the lung disorder. On the contrary, cases are not rare in which an impartial consideration of the symptoms during life, and the post-mortem appearances, would lead to a directly opposite conclusion.

Though I am not inclined to extend the signification of "scrophulosis" too far, I still hold, that for certain by no means rare forms of intestinal ulcers which have usually been esteemed tuberculous, the designation "scrofulous ulceration of the bowels" is the only one justified by circumstances. By a scrofulous ulcer we understand one determined by the inflammation and ulceration of a lymph gland enlarged by cell hyperplasy, which has usually undergone cheesy degeneration. These, we know, occur usually about the neck in company with the moist exanthemata of the scalp or face, with otorrhœa, diseases of the mucous membrane of the mouth, etc. They are characterized by great obstinacy, by encroachments upon the contiguous connective tissue, and by their irregular serrated borders. The intestinal ulcers in question unmistakably arise from the ulceration of the intestinal glands that have enlarged by cell hyperplasy and undergone cheesy degeneration. The swelling of these glands usually attends catarrh of the bowels in the same way as that of the cervical glands accompanies the moist exanthemata. These ulcers possess the obstinacy, the same tendency to invade the contiguous submucous tissues, and the same irregular serrated edges as scrofulous ulcers of external parts.

In children tuberculosis of the bowels is, as contrasted with tuberculosis of the lungs, a specially frequent disease, while in childhood the scrofulous exanthemata, catarrh, and ulcerations, are likewise specially frequent; and we would further call attention to the facts that the

ulcers of the bowels often bear the stamp of having existed for a long period, are often partially healed over, and that the mesenteric glands contain, as a rule, chalky masses. Now for such ulcers we find the term "scrofulous" entirely in place. I do not of course mean to assert that all the intestinal ulcers which have been given out as secondary tubercular ulcers are really of scrofulous origin, but only wish to warn against confounding them with one another, and *therefore* add, that *we meet quite as frequently with entirely fresh eruptions of tubercle upon the serous coating of old scrofulous intestinal ulcers, as we do in the lungs in the neighborhood of old vomica.*

Ætiology.—Strictly speaking, the *hereditary nature of tuberculosis* has not been proven. We are entitled only to speak of hereditary tuberculosis in those cases in which either father or mother at the time conception took place were tubercular, and where the child has not suffered from some disease leading to, but is attacked immediately by, tuberculosis. In childhood, when tuberculosis of the lungs is rare, we can only adduce the pretty frequent occurrence of meningeal tubercle. But here, aside from the difficulty of proving that the parents of such children were really tuberculous at the time conception took place, it is only in the rarest cases that miliary tubercle of the meninges occurs as a primary development. I scarcely remember a case where, at the autopsy, cheesy bronchial glands, or other cheesy collections, were not discovered. Where adults become tuberculous, even when of notoriously tuberculous parents, the tuberculosis is almost always the last link in a chain of nutritive disturbances which influenced its origin. At the same time I must speak decidedly in favor of *an hereditary tendency to phthisis*, arising from weakness and vulnerability of the constitution, either directly inherited from the parents, or developed later through illness. This vulnerability may be due to other causes than phthisis, as when the parents were syphilitic or suffering from some other wasting diseases, or where they were old and decrepit at the time of the

procreative act. In such a case it would be more proper to speak of an innate than an hereditary disposition.

The injurious influences through which a tendency to phthisis is acquired, or an innate tendency increased, are too well known to enter upon them in detail here. As such have been rightly designated insufficient food, deprivation of light, want of exercise, want of fresh air, venereal excesses, prolonged lactation, depressing mental affections, etc. The injurious influences which diseases have upon the constitution and upon the tendency to phthisis make themselves most felt in childhood. It is fortunate for children if they are saved from disease during the first years of life, when the development of the body is most rapid, and the foundation for strong, robust, or weak and delicate health is laid, according to the favorable or unfavorable nature of the external relations. Even vaccination may sometimes considerably depress weakly children and leave behind the germ of a tendency to phthisis. We therefore forbid vaccination of delicate children when no epidemic or small-pox prevails, or no cases occur in the neighborhood, postponing it until the constitution is strengthened, and can bear without harm the short and insignificant disturbance vaccination gives rise to.

It is easy to see that all the occasions which lie at the bottom of an innate or acquired disposition to phthisis coincide in this, that they hinder or disturb the normal development and maintenance of the organism. Where this occurs before the formation of the body is completed, the results remain stamped upon the entire individual. While the height is not interfered with, the development in breadth suffers, the skin is fine, the subcutaneous areolar tissue is lacking in fat, the muscular system is poorly developed, the large bones are thin, and the thorax displays the "paralytic form" dependent upon the insufficient nutrition of its muscles. Such an one is said to be of a consumptive habit. Now experience teaches, that *delicate, badly-nourished persons, possess less power of resisting deleterious influences, that*

they fall ill more easily, and recover more slowly, than strong and well-nourished persons. In their cases *inflammatory disturbances of nutrition usually give rise to a very abundant production of transitory cells*. The wounds of such persons heal badly, because a comparatively trivial traumatic injury produces marked irritation of the injured parts, and gives rise to an abundant production of pus cells.

We must add, however, that sometimes persons apparently without any signs of delicate health, or of bad nutrition, fall ill upon slight provocation, while others, apparently weakly, possess considerable powers of resistance. In such cases we must regard the vulnerability of the individual as a more trustworthy sign than a weakly habitus.

In conclusion, we would briefly state our position regarding the *relation of scrofula to phthisis*. Persons, whose lymph glands participate in the general vulnerability and tendency of the tissues to furnish an abundant production of cells upon inflammatory irritation, are termed scrofulous. The disposition of the lymph glands to enlarge by cell hyperplasy is constantly connected with a predisposition to inflammatory affections. This is so marked that the exciting causes of the scrofulous exanthemata, catarrhs, etc., as a rule escape our observation. If now the vulnerability of the scrofulous individual persists up to the age in which lung diseases are common, while the frequency of the moist exanthemata, conjunctival diseases, etc., is diminished, pneumonic processes occur, following upon the same trivial exciting causes, and showing the same obstinacy as the so-called scrofulous diseases. The latter circumstance is specially favorable to a termination in cheesy infiltration. Persons, however, who have outgrown a scrofulous disposition and retain neither increased vulnerability of constitution, nor cheesy residuæ in the lymph glands, possess no special tendency to phthisis.

The view that phthisis depends solely upon a diathesis without reference to a proximate cause, I regard as

dangerous. Thus Lebert, among others, asserts: "It is important that, in the rule, no special ground can be ascertained for the beginning of chronic tuberculosis;" and again, "The popular opinion that a neglected catarrh may lead to consumption, is false." Luckily the laity are more prudent, where a predisposition exists, than would be necessary were the opinions of most physicians upon the character of phthisis correct.

To the proximate causes, we regard as belonging *all the injurious influences which give rise to catarrh of the bronchi and congestive hyperæmia of the lungs*. The latter may originate in excessive physical exertion. In my list of cases I have a number of examples where the first indication of phthisis followed immoderate dancing, or other similar excesses, without it being probable that a cold was taken at the same time.

Direct irritation of the lungs and bronchial mucous membrane by foreign bodies, plays an extremely important rôle among the proximate causes of phthisis. Of these foreign bodies *coagulated blood remaining behind in the bronchi and alveoli after hæmoptoe or pneumorrhagia*, has most frequently such an influence. *In most cases more or less violent irritation of the lungs and pleura follows after hæmoptoe*. Since my attention has been drawn to this consecutive pleuro-pneumonia, I have found almost invariably upon the second or third day after the hæmorrhage an increased temperature of the body, a frequent pulse, general disturbance of the system, more or less severe lancinating pains in the lateral regions of the thorax, and frequently fine râles, friction sounds, or a slight dullness, with diminished vesicular, or with bronchial breathing. I do not mean to say that pneumonic processes following hæmoptoe leave behind cheesy infiltrations terminating in phthisis in all, or even in most cases. On the contrary, resolution is the rule. Often, after a few days, all the symptoms disappear and the patient becomes convalescent. But in other cases the increased temperature and the frequent pulse persist for a long period. Slight pains are felt in the breast,

and are ordinarily attributed by the patient to rheumatism. The respiration is accelerated, the patient coughs and expectorates muco-purulent sputa. If we now find dullness over more or less surface of the chest, feeble or bronchial respiratory murmurs, and the patient wasting under a fever that continually augments in intensity, with evening exacerbations, and profuse night-sweats, we have reason to fear that the pneumonic infiltration has undergone the cheesy metamorphosis, and the patient become phthisical. With a reasonable absence of prejudice, we must in this way interpret most cases in which galloping consumption succeeds to a hæmorrhage in a previously healthy man. I would, however, expressly state I am far from holding this to be the only relation existing between hæmoptoë and phthisis. I regard, on the contrary, hæmoptoë, especially one that takes place upon slight provocation, as in itself of evil omen, as experience teaches that a morbid tendency to rupture in the branches of the bronchial artery is attended by a disposition to inflammatory affections of the lung parenchyma, which is likewise supplied by the same artery. I likewise acknowledge that bronchial hæmorrhage is much more frequent in the course of phthisis than previous to that disease.

Symptoms.—Cases of phthisis present a different aspect, according as the symptoms are due from beginning to end to pneumonic processes, or according as the disease begins with or subsequently becomes complicated by tuberculosis.

An *increased frequency of respiration* takes place in all forms of phthisis, and when moderate may not be associated with dyspnœa. Both frequency of respiration and dyspnœa depend in part upon the diminution of the respiratory surface, in part upon the accompanying catarrh, which lessens the calibre of the bronchi, partially, but rarely, upon pains in respiration, and most of all upon the fever. Dyspnœa is usually only present when several of these factors are simultaneously active. The respiratory surface may be considerably diminished

by tubercle granulations filling a large number of scattered alveoli, and closing the finer bronchi, which, at the same time, escape as a rule physical demonstration. Marked frequency of respiration without dullness on percussion, or bronchial breathing, is one of the most important symptoms, therefore, of tubercular phthisis in its proper signification. When a patient who, with solidification and destruction of a lung, has previously suffered but little from shortness of breath, is suddenly attacked by great frequency in respiration, and distressing dyspnœa, without, at the same time, any perceptible augmentation of the physical signs, or of the fever, there is urgent reason for suspecting that tuberculosis has been added to phthisis. Fever evidently increases the frequency of respiration, as it is dependent upon an abnormal increase in the production of heat. The *besoin de respirer* increases in fever because more carbonic acid is formed and more oxygen required, though this need is frequently satisfied by the patient's drawing a longer breath.

Pains in the breast and shoulder often fail during the entire disease. They more generally accompany the pneumonic than the tubercular processes, and must therefore be of diagnostic importance where the question lies between small, scattered pneumonic collections, and tubercle.

Cough and expectoration in numerous cases precede phthisis and thus belong to the prodromic catarrh. It is of the greatest importance to ascertain in the case of each patient, whether the fever, the wasting and pallor, has occurred after the patient has long coughed and expectorated abundant sputa, or whether they took place simultaneously with the cough and dyspnœa, before the expectoration became abundant. In the first cases, *ceteris paribus*, we have more probably to deal with a pneumonic process, and in the second, with tubercular phthisis.

The *duration* of the prodromal catarrh differs. We may be able to demonstrate incipient phthisis in the

second or third week. This occurs not only in cases following measles and whooping-cough, but frequently where tuberculosis ostensibly begins, under the form of a catarrhal fever or influenza. At other times it may persist for years, growing worse in winter and improving in summer, until finally it attacks the alveoli. The seat of the catarrh is sometimes, from the commencement, in the finer bronchi, while not rarely the catarrhal disease begins in the larynx and trachea.

The *sputa* expectorated in the course of an ordinary catarrh deserves the greatest attention. In the sharply-defined yellow striæ, which sometimes are observed, we find no sign of incipient tuberculosis, but of a catarrh of the finest bronchi, furnishing a product abounding in cells. The admixture of blood with mucus or muco-purulent sputa, is a dangerous sign, indicative in the rule of a commencing pneumonic process.

Cough and expectoration seldom fail, though I recollect a girl of eighteen in whom those symptoms were absent, though the entire upper lobe of the left lung was solidified. It is well known that sometimes, upon the setting in of diarrhœa, these symptoms disappear. A protracted tormenting cough, with slight expectoration, which is poor in form constituents, corresponding to the "sputum crudum" of the older, and to "the pure mucus sputum" of the later authors, is highly significant, leading one to fear tuberculosis of the bronchial mucous membrane and alveoli. Other properties of the cough and expectoration given by authors, may be characteristic of phthisis, but not of tuberculosis. The *sputa globosa fundum edentia*, point to rounded cavities; the rice-shaped bodies, when they do not come from the tonsils, show diphtheritic disintegration in the walls of a bronchus or cavern; the sinking of sputa in water proves that it does not come from the larger bronchi, while elastic fibres show that destruction of the tissues is proceeding. We must look for other signs for tuberculosis. Indeed, we can confidently state that *a patient who, among other symptoms, expectorates sputa*

enabling us to decide upon extensive destruction of the lung tissue, may not rarely be in less danger than one who is feverish, becomes weak and pale, and only expectorates the tough transparent sputa we have previously alluded to.

A hoarse voice, without resonance, is among the most important signs of tubercular consumption, or a *complication of phthisis originating in inflammatory processes with tuberculosis*. The late appearance of these characters speaks in favor of a consecutive tuberculosis, but where they have been present from the commencement, and especially at the time in which the sputa is tough and transparent, and the chest upon examination shows no marked anomalies, there is reason to suspect primary tuberculosis.

Fever is one of the most constant symptoms of both pneumonia and tuberculosis. A considerable increase in the temperature and in the frequency of the pulse constantly marks the extension of the catarrh to the alveoli of the lungs. Persistence of the fever is one of the most important signs that the pneumonic processes have not run their course. The morning and evening fluctuations of temperature coincide in phthisical patients in a striking manner, enabling us to decide regarding a case of phthisis with almost the same certainty that we can regarding abdominal typhus and acute pneumonia. The morning and evening difference is, as a rule, 1° — 1.5° C., rarely less, often considerably more; frequently in the morning the temperature may be nearly normal, while in the afternoon or evening it may reach 102° F., or even more. In persons suffering from a protracted peripheral suppuration, caries, etc., there is shown a great difference as far as regards the regularity of the morning remissions and evening exacerbations. We have not decided as to the sources of these disturbances, but we can at present state that where *tuberculosis is present*, the differences in the morning and evening temperature are less considerable. The prognosis is better, therefore, where the fever is remittent, with almost an intermittent type, than where it is con-

tinuous. Where the cheesy masses become encapsuled or fluidify and are reabsorbed, the fever may cease altogether, so that a patient with large vomicæ at the apices of the lungs may be wholly free from fever. As such persons are in danger of relapses, it is well from time to time to ascertain the weight of the body, and the condition of the temperature, in order to determine whether such an occurrence has taken place.

We speak next of the *anæmia* and *emaciation*, because we regard the fever as their principal source. We have, for years past in my clinic, by repeatedly measuring and weighing patients, shown that the increase and decrease in weight correspond to the height and diminution of the fever.

After abandoning Laennéc's stand-point, the physical signs win another significance, and we find it necessary to consider in each case whether we are dealing with tuberculosis, or the disintegration of cheesy matter, or with inflammatory process leading to the destruction and shrinking of the lung parenchyma. Though these processes are often combined they are by no means invariably so, and it is well in every case to determine which prevails. In the first stage, as generally acknowledged, the physical signs depend upon catarrhal swelling of the bronchial mucous membrane, and the secretions in the bronchi. We find at autopsies, at the apices of the lungs, pneumonic processes of older or more recent date, with greater frequency than tubercle. Catarrh at the summit of the lung has a special disposition to attack the lateral and terminal alveoli. So long as the peri-bronchitic and pneumonic collections thus occasioned do not combine to form extensive solidification, dullness and bronchial breathing are absent, and physical investigation affords, apart from the catarrh, but negative results. We conclude specially that the lung tissue has been attacked from the occurrence of fever, from the wasting, and from the pallor of the skin. In such cases, by careful treatment, we have often seen entire recovery. We regard, therefore, the catarrh as neither

a sure sign of commencing *tuberculosis*, nor the constant precursor of *phthisis*, but a sign that the patient is in danger of becoming *consumptive*.

Dulness, bronchial respiration, and sonorous râles in the upper portions of the chest are regarded by many, even of the laity, as pathognomonic signs. We may decide from them with certainty upon pneumonic infiltration, or its residuæ, though we cannot say that the patient may not have tubercle likewise. Where the progress of the disease corresponds to the spread of dulness and bronchial respiration the prognosis is relatively more favorable than where the patient has violent fever, and wastes rapidly without any corresponding increase in the dulness.

A resonant and tympanitic percussion sound belongs to symptoms leading us, in a patient with increased frequency of respiration, cough, moderate expectoration, etc., to suspect that the lung is diminished in capacity by means of tuberculosis, and the lung parenchyma become relaxed. The same effect may, however, be produced by small pneumonic deposits.

Depression of the infra- and supra-clavicular regions, as well as the deep position of the upper border of the lung, indicates *solely and always* the diminution of the apex of the lung by induration and shrinking. To pronounce a patient presenting these conditions *consumptive*, we must look for positive data upon which to base our diagnosis in the general condition of the patient, in the sputa, and other physical signs. When these fail, the depression is an important sign of one of the most favorable terminations as regards the cure of the processes leading to *phthisis*.

Diminution of the respiratory excursions, when connected with the depression just mentioned, has the same significance as that symptom.

The *amphoric murmurs* cannot readily occur in tubercular caverns. It is questionable whether extensive caverns ever arise from the softening and evacuation of tubercle masses, and the subsequent repetition of the same pro-

cess in the walls of the primary cavern. At any rate, the large caverns in phthisical lungs are in most cases due to bronchiectasis, or to the disintegration of cheesy infiltrated tissue.

Therapeutics.—The treatment of phthisis is established upon a far firmer foundation by the knowledge that in the rule we have to deal with pneumonic processes, and only in single instances with a new-formation. This has not led to the introduction of new remedies, but simply enables us to fix more sharply the indications for the ordinary means of cure, and thus to obtain better results than where phthisis was regarded as incurable. As prophylaxis children having a tendency to diseases leading to the formation of cheesy products should be kept much in the open air. Don't confine them in the house to protect them from taking cold. Parents send weakly children with catarrhs, chronic exanthemata, etc., to sit six hours at a time upon school-benches, besides having them learn their lessons, and practice upon the piano at home, thinking this allowable if they only see that their children take cod-liver oil regularly, as though cod-liver oil could take the place of fresh air. Where the circumstances of the parents allow, better send such children during the winter to a climate where they can play out doors every day. Guard children against bronchial catarrhs, and strive when these are present to remove them quickly and fully.

Where an acute catarrh attacks the alveoli, don't conclude that the catarrhal manifestations at the summit of the lungs, the fever, the general disturbance of the health, the loss of strength, etc., are sure signs of tuberculosis, and therefore allow the patient to go about his business from an idea that measures are useless, but keep him for a time confined strictly to his bed, forbid all useless talking, cover his chest with cataplasms, upon the first appearance, and upon each repetition of pleuritic pains prescribe local blood-letting by means of cups or leeches, and many a patient will recover who

formerly was regarded as beyond assistance. The same course is most urgently recommended *in the exacerbations with marked febrile manifestations occurring during the course of chronic phthisis*. So soon as consumptive patients begin to grow very feverish toward evening, make them stop their business employment, and keep away from over-heated clubs and coffee-houses filled with fumes of tobacco. Such an avoidance of deleterious influences, combined with strict rest, an even temperature, and the application of heat and moisture, frequently leads in a surprising short space of time to an arrest of the disease, and improvement of the patient.

The greatest enemy to the consumptive is the fever. Where the above course, therefore, does not have the desired effect, and the fever continues, our next resort is to the febrifuge remedies. Of these, the best unquestionably are quinine and digitalis. The most common prescription I order in the hospital is a pill containing quiniæ sulph. 1 grain, digitalis gr ss. ext. opii. quarter grain, and give of these one four times daily. The patients themselves learn pretty quickly by experience when to take their pills and when to stop them.

As regards *diet*, experience and science both show the advantages of large quantities of fat, or fat-producing substances, and a proportionably small amount of protein substances. Milk (to which little children owe the roundness of their limbs, and which corpulent persons rightly avoid) cannot be urgently enough recommended. To avoid any possibility of a previous removal of the cream, I am in the habit of ordering it warm from the cow, a pint (Schoppen) three times a day. Cod-liver oil I esteem highly, but we can fully supply its place with the less disgusting malt extract, which contains in the place of fat, fat-producing substances. The grape-cure may likewise be recommended instead of cod-liver oil. After taking three or four pounds daily of sweet grapes at Vevay, Montreux, etc., almost every one becomes in a few weeks fatter and heavier, and where the bowels were previously healthy diarrhœa rarely occurs.

In other respects phthisis dependent upon pneumonic processes should be treated upon *the same principles as catarrhs limited to the bronchial mucous membrane*. Mineral springs containing the alkaline chlorides have a curative influence not only upon the prodromal catarrh, but upon phthisis itself.

Treatment in cases of primary tuberculosis, or tuberculosis developed in the course of phthisis, is powerless. Febrifuge remedies accomplish but little in the fever of tuberculosis. When we find a patient is tuberculous, it is needless to send him to Nice or Cairo, but let him remain among his friends and die in his own house.

Reviews and Bibliographical Notices.

ART. I.—*Hysteria. Remote causes of Disease in general. Treatment of Disease by Tonic Agency. Local or Surgical Forms of Hysteria, etc.* Six lectures, delivered to the Students of St. Bartholomew's Hospital, 1866, by F. C. SKEY, F. R. S., late President of the Royal College of Surgeons of England, Consulting Surgeon to St. Bartholomew's Hospital, etc. New York. A. Simpson & Co. 12mo. pp. 103.

IN the JOURNAL for April, 1867, we gave a lengthy and commendatory notice of Mr. Skey's little book, and we are glad to see it now placed within the reach of the profession in this country. The principles underlying his treatment of disease are based primarily upon nutrition and support of the patient, and are antagonistic to the indiscriminate, spoliative plan which has so long held sway over the medical profession, but which now is happily giving way before the boldness of such men as Chambers, Hewit and Skey abroad, and Flint here at home, who dare to teach what they practice. Such teachings cannot fail to do good, and we again earnestly commend this little treatise to our readers, assuring

them that it contains more sound practical advice than is contained in any book of the size with which we are familiar.

ART. II.—*The Physician's Hand-Book for 1867.* By Wm. Elmer, M. D. New York. W. A. Townsend & Adams. 1868.

DR. ELMER'S Hand-book has so long and favorably been known to the profession in this country, that it is entirely superfluous now to speak of its merits. But the measure of its success does not content the author, and each year we see valuable improvements introduced—improvements suggested, not alone by his own experience, but by the advice of professional gentlemen, who have kindly given counsel to this end, and this year especially, we may say, that the book is almost entirely newly prepared. The very handsome and attractive style in which it is issued is highly creditable to the publishers.

ART. III.—*Hufeland's Art of Prolonging Life.* Edited by ERASMUS WILSON, F. R. S., etc. From the last London edition. Philadelphia. Lindsay & Blakiston. 1867. 12mo. pp. 288.

THIS production of Hufeland, of which the work before us is a translation, has gone through several editions in Germany, and was formerly held in great repute. Written toward the close of the last century, its precepts are by no means of the great value they formerly possessed, and many of them, with the extension of sanitary science, have become common-place. Nevertheless, as a whole, the book is as useful as any other popular treatise on hygiene, and if people will only read and abide by its teachings, they can scarcely fail to be benefited thereby. Nobody, however, follows the advice in such volumes unless it is perfectly agreeable for them to do so, and as a consequence the measure of good they accomplish is exceedingly small.

ART. IV.—*A Biennial Retrospect of Medicine, Surgery, and their Allied Sciences*. Edited by MR. H. POWERS, DR. ANSTIE, MR. HOLMES, MR. THOMAS WINDSOR, DR. BARNES, and DR. C. HILTON FAGGE; for the New Sydenham Society. Philadelphia. Lindsay & Blakiston. 1867. 8vo. pp. 522.

WE regret exceedingly to see an American reprint of this valuable work, and for the following reason. The New Sydenham Society, it is well known, are engaged in a labor which may be looked upon as a great public service, and any interference of this sort may so far derange their plans as to compel a stoppage of their work. The year-book is one, if not the most valuable, of their yearly issues, and American subscribers may be induced to purchase this reprint and withdraw their subscription from the parent society, and the loss of the American sales might be sufficient to result as we have above intimated. The society gives a larger and better amount of professional reading-matter than can be obtained for the same money from any other source we know of—a fact which we are inclined to think the profession in this country do not yet fully appreciate—and it should be sustained and encouraged, not only by direct subscriptions, but by the influence of the medical press. And for one, we beg leave to enter our protest against any further interference with this most valuable institution. In the absence of an international copyright, we do not question the legal right of any American publisher to reprint any or all of the Sydenham books; but as a matter of equity and of professional polity, the question takes quite a different aspect, and we shall never lend our influence to aid in sustaining any such ill-advised procedure.

This issue of the *Retrospect* abounds in unusually valuable material, and the names of the editors are a sufficient guarantee for the excellence of their work.

We should have been pleased to give a review of the book, for it is richly worth it, but, under the circum-

stances of its publication, we must decline, and if any of our readers feel disposed to obtain the book for themselves, we beg they will pass by this edition and enter their names with either of the American agents of the society, and thus aid in sustaining a most worthy and public-spirited enterprise.

ART. V.—*Studies in Pathology and Therapeutics.* By SAMUEL HENRY DICKSON, M. D., LL. D., Professor of the Practice of Physic in Jefferson Medical College, Philadelphia, etc. New York. William Wood & Co. 1867. 12mo. pp. 201.

THIS little volume consists of six essays upon the following subjects; Disease, its Character and Tendency; the Causation of Diseases; on Certain Morbid Conditions of the Sensorial System; Pneumonia; Scrofulosis and Tuberculosis; Therapeutics. All are written in an exceedingly happy style, and whilst we cannot invariably agree with their learned author, we do not fail to recognize the healthy and honest tone which pervades every page. The third essay is especially interesting, treating, as it does, of subjects which are just now attracting unusual attention from medical and other scientific men. We commend Dr. Dickson's book to all, whether in the profession or out of it, who take an interest in the topics he has selected for discussion, and has treated in so philosophical a spirit.

Reports on the Progress of Medicine.

THEORY AND PRACTICE OF MEDICINE.

ART. 1.—*Electricity in Pulmonary Consumption.*

THE value of systematic exercise of the muscles of the chest in the earlier stages of phthisis is very generally recognized. Dr. Elsberg of this city, in a communi-

cation to the *Philadelphia Reporter*, urges the employment of electricity for this purpose, after the manner first proposed by Dr. Bastings of Brussels in his essay "*De la Phthisie Pulmonaire.*" The following advantages are claimed for this system of muscular gymnastics.

1. It can be applied directly to any special muscle or set of muscles which the physician desires to bring under its influence.

2. It can be carried out daily, at all hours and seasons.

3. It does not fatigue or exhaust the patient.

4. It can be employed at all ages and in every condition of debility.

5. It can be applied in the patient's house, in bed, etc.

6. Even when absolute rest is requisite, such as in pulmonary hæmorrhage, it may be employed.

7. The injurious influences of the weather and other inconveniences inseparable from other kinds of exercise or muscular gymnastics are avoided.

8. It acts more powerfully and in less time than any other gymnastics.

ART. 2.—*The Prevention of Pitting in Small-Pox.*

THE importance of excluding air from the pustules of small-pox to prevent pitting, has long been acknowledged; but the influence of light in the production of this disfigurement has not been so generally recognized or admitted, although insisted upon by some authorities, and notably by the late Dr. Picton, of New Orleans. It would seem, theoretically, that many of the specific applications that have been suggested and used for this purpose, must act only mechanically, and by the exclusion of the light and air, for their direct therapeutical effects are very varied, and even contradictory one to the other—and as they are all brought to bear upon the same morbid condition, it is difficult to see how

they can all produce identical results by virtue of any inherent therapeutical power they may possess.

Dr. Black, of Chesterfield, England, in the *Lancet* for June 29, 1867, reports a number of cases of small-pox in which, on purely theoretical grounds, he excluded both light and air. The patients were kept in absolute darkness, except at such times as anything important was required to be done in the room; and then only the light of a candle was used. The air was excluded by keeping the face constantly smeared with a thick coating of hog's lard. The patients recovered without disfigurement.

Dr. B. argues, and with reason, too, we think, that the non-pitting is due rather to the exclusion of the light than the atmosphere; for in some cases where a moderate amount of sun-light was admitted to the room, there was some pitting, although the occlusion of the air was as perfect as in other cases. On the other hand, cases kept in absolute darkness (notwithstanding the fact that the patients from the intense itching were constantly rubbing off the coating of lard) recovered without pitting.

"The medical treatment pursued in each of the cases consisted in administering from one to two drachms of the solution of acetate of ammonia, with two to three drops of the solution of arsenite of potash, every second or third hour, from the commencement of the initiatory stage to the acumination of the pustules, from which period to the completion of the stage of desiccation, the dilute nitric acid, in doses of three or five drops, was substituted for the acetate of ammonia only. The diet consisted chiefly of milk and light farinaceous food, with cooling drinks, during the early stage of the disease; and of these, with the addition of beef-tea, chicken-broth, and similar food, as the maturation of the pustules progressed. In but one instance was recourse had to any alcoholic stimulant, and that was in the case of my first patient, who was allowed a small quantity of wine during convalescence.

“Although the particular medicines administered do not seem to have had the power of directly preventing pitting, yet it is probable that they indirectly contributed to the result.

“This opinion is based on the following reasons: The skin is the outlet by which Nature seeks to relieve herself of the variolous poisons. Acetate of ammonia promotes the action of the skin; nitric acid does not; therefore acetate of ammonia, given in the early stage of small-pox, assists in localizing the disease, and in removing the *materies morbi* from the blood to the skin. When this has been accomplished, which is the case on the acumination of the pustules, nitric acid is henceforward beneficial, not only for its antiseptic properties, but for the reason that it reduces the vessels of the skin to their natural diameter, and thus tends to the desiccation of the pustules. From the commencement to the end of the disease the arsenite of potash is given on the principle of destroying or neutralizing the various poisons in the blood. It is thus a fit associate for the acetate of ammonia in the early stage of the disease; and, for the same reason, and because of its tonic properties, it is properly associated with the nitric acid during the stages of pustulation and desiccation.”

One important fact noticed in connection with his cases was the absence of secondary fever. This result he attributes to the united influence of all the remedial agents employed, rather than to any one; but his principal object in publishing the paper is to set forth his confident declaration that the complete exclusion of light from the eruption of small-pox, in persons unprotected by vaccination, effectually prevents pitting of the face.

ART. 3.—*Diphtheria. Treatment of by Permanganate of Potassa.*

IN the *Edinburgh Medical Journal* for February, 1867, Dr. W. Watson Campbell of Dunse, strongly

recommends the use of this substance as a gargle—of the strength of gr. ss to the ounce. He does not rely exclusively upon this, but accompanies it with ferruginous tonics, wines, and careful nourishments. The following are his results: "Of twenty-three cases of diphtheria which occurred in my practice before I used the permanganate of potash gargle, ten died. Of the thirteen who recovered, four had paralysis to a greater or less extent. On the other hand, of the twelve cases that have occurred since (excluding one still under treatment), *none* died, and only two have had paralysis."

TREATMENT BY ICE.—The treatment of diphtheria by ice, first employed by Hufeland, afterward tried by M. Grand-Boulogne, has been the object of new experiments by M. Bleynie, father. He has made a series of observations, from which may be gathered the advantages of this treatment. M. Bleynie gives ice constantly in small bits, administered successively as fast as they melt in the mouth. At the same time he prescribes syrup of perchloride of iron, 25 to 40 grammes a day in three or four portions; the chlorate of potassa, 4 grammes in a draught, 1 tablespoonful every hour or two; and finally wine in variable quantity, as stimulant and tonic. This medication is complex, and it appears difficult at first to determine how much, in the effects produced, is attributable to the ice. But M. Francis Bleynie observes that the use of the perchloride of iron, chlorate of potassa, and wine, has never given results so satisfactory as when ice was concurrently employed; and, on the other hand, the administration of ice alone has sufficed in three cases for a recovery. "Whatever be the explanation proposed for the action of this remedy," he adds, "we cannot fail to recognize its efficacy. The ice has at first a local action; it causes the false membranes to disappear, and prevents their reproduction. Has it a general action? M. Grand-Boulogne is disposed to think so. We cannot come to any conclusion from the cases observed

by us, the malady always having been treated until the false membranes could be reached by the freezing water. If the ice is without action upon the diphtheritic affection itself, it counteracts at least the imminent danger, which is the principal thing, and gives to the other remedies, such as stimulants and tonics, time to act."—*Gazette Médicale*.

TREATMENT BY CARBOLIC ACID.—Mr. Charles Sedgwick, of Hollingbourn, Maidstone, England, in a communication to the *Medical Times and Gazette*, strongly urges the use of carbolic acid in this disease. He says :

"I usually give it in the form of a gargle, but in children, by swabbing the throat out freely with it on a piece of sponge. When the disease has been taken early I have not failed in a single case, but have lost some where it had gone too far for medical treatment to be of any service. Carbolic acid has a decided effect upon the false membrane thrown out. The following is the form I usually prescribe: R. *acidi carbolici*. Mxx ; *acid acetici*, half a fluid-drachm ; *mellis*, two drachms ; *tinct. myrrhæ*, two fluid-drachms ; *aquæ*, q. s. to six fluid-ounces ; mix, and make a gargle. The carbolic and acetic acids to be well shaken together, the honey to be added to the water gradually. With it I usually give tincture of iron and quinine."

TREATMENT BY IODINE INHALATION.—Mr. J. Waring Curran reports to the *Lancet*, September 21, 1867, a marked success in an epidemic of diphtheria in his town from the use of the inhalation of iodine vapor. This plan was adopted after the usual remedies had been applied and failed. Conjointly with it he enforced a powerful tonic and stimulating regimen. Other physicians in the vicinity had a similar experience, and the almost universal failure of the ordinary treatment led them to attribute the recoveries principally to the influence of the iodine.

SUMMARY.

Our space will only permit a reference to the following papers :

Case of Hydatid Disease of the Liver ; Suppuration ; Recovery. By W. B. PEEBLES, M. B. (Medical Press and Circular, June 19, 1867.)

A very unusual case, in which the opening of the abscess was into some portion of the bowel. The hydatid cysts were discharged in quantity *per anum*.

On the Milk Cure. By PHILIP KARRELL, M. D., Physician to His Majesty the Emperor of Russia. Translated from the author's manuscript, by G. L. Carrick, M. D. (Edinburgh Medical Journal, August, 1866.)

The claims of success by this plan of treatment in cases of chronic and organic disease, not usually amenable to treatment, are very positive, and if the numerous cases reported are given with fidelity, attention should certainly be given by the profession to this method.

Lectures on the Prognosis and Treatment of certain Acute Diseases with special Reference to the Indications afforded by the graphic study of the Pulse. By FRANCIS E. ANSTER, M. D. (Lancet, Aug. 17 and Sept. 28, 1867.)

A serviceable contribution to the study of the sphygmograph and confirmatory of the estimate hitherto formed of its value as a diagnostic and prognostic means, and already published in the JOURNAL for 1867.

On the Treatment of Pulmonary Consumption by Hygiene, Climate and Medicine. By J. HENRY BENNET, M. D. (Lancet, Sept. 29, et seq., 1866.)

On the Treatment of Phthisis by Change of Climate. By THOMAS MOORE MADDEN, M. R. S. A., etc. (Medical Press and Circular, Sept. 24, et seq., 1867).

SURGERY.

ART. 4.—*The Use of Carbolic Acid in Surgery.*

PROF. LISTER, of the University of Glasgow, in a series of papers to the *Lancet* (March 16, 23, 30, April 27, and July 27, present year), has been most enthusiastically recommending the use of carbolic acid in the treatment of various sorts of wounds. The subject has naturally attracted much attention, and the

journals have been overflowing with communications, memoranda and editorials relating to this question. In a paper read at the recent meeting of the British Medical Association, in Dublin, under the title of "*The Antiseptic Principle in the Practice of Surgery*," Prof. Lister sums up the results of his own observations and experiments, from which we quote, viz.:

"In the course of an extended investigation into the nature of inflammation, and the healthy and morbid conditions of the blood in relation to it, I arrived, several years ago, at the conclusion that the essential cause of suppuration in wounds is decomposition, brought about by the influence of the atmosphere upon blood or serum retained within them, and, in the case of contused wounds, upon portions of tissue destroyed by the violence of the injury.

"To prevent the occurrence of suppuration, with all its attendant risks, was an object manifestly desirable, but till lately apparently unattainable, since it seemed hopeless to attempt to exclude the oxygen, which was universally regarded as the agent by which putrefaction was effected. But when it had been shown by the researches of Pasteur that the septic property of the atmosphere depended, not on the oxygen or any gaseous constituent, but on minute organisms suspended in it, which owed their energy to their vitality, it occurred to me that decomposition in the injured part might be avoided without excluding the air, by applying as a dressing some material capable of destroying the life of the floating particles.

"Upon this principle I have based a practice of which I will now attempt to give a short account.

"The material which I have employed is carbolic or phenic acid, a volatile organic compound which appears to exercise a peculiarly destructive influence upon low forms of life, and hence is the most powerful antiseptic with which we are at present acquainted.

"The first class of cases to which I applied it was that of compound fractures, in which the effects of decom-

position in the injured part were especially striking and pernicious. The results have been such as to establish conclusively the great principle, that *all the local inflammatory mischief and general febrile disturbance which follow severe injuries are due to the irritating and poisoning influence of decomposing blood or sloughs*. For these evils are entirely avoided by the antiseptic treatment, so that limbs which otherwise would be unhesitatingly condemned to amputation may be retained with confidence of the best results.

"In conducting the treatment, the first object must be the destruction of any septic germs which may have been introduced into the wound, either at the moment of the accident or during the time which has since elapsed. This is done by introducing the acid of full strength into all accessible recesses of the wound by means of a piece of rag held in dressing forceps and dipped in the liquid.* This I did not venture to do in the earlier cases; but experience has shown that the compound which carbolic acid forms with the blood, and also any portions of tissue killed by its caustic action, including even parts of the bone, are disposed of by absorption and organization, provided they are afterward kept from decomposing. We are thus enabled to employ the antiseptic treatment efficiently at a period after the occurrence of the injury at which it would otherwise probably fail.

"The next object to be kept in view is to guard effectually against the spreading of decomposition into the wound along the stream of blood and serum which oozes out during the first few days after the accident, when the acid originally applied has been washed out, or dissipated by absorption and evaporation. This part of the treatment has been greatly improved during the past few weeks. The method which I have hitherto published, consisted in the application of a piece of lint

* The addition of a few drops of water to a considerable quantity of the crystallized acid induces it to assume permanently the liquid form.

dipped in the acid, overlapping the sound skin to some extent, and covered with a tin cap, which was daily raised in order to touch the surface of the lint with the antiseptic. This method certainly succeeded well with wounds of moderate size; and, indeed, I may say that in all the many cases of this kind which have been so treated by myself or my house-surgeons, not a single failure has occurred. When, however, the wound is very large, the flow of blood and serum is so profuse, especially during the first twenty-four hours, that the antiseptic application cannot prevent the spread of decomposition into the interior unless it overlaps the sound skin for a very considerable distance, and this was inadmissible by the method described above, on account of the extensive sloughing of the surface of the cutis which it would involve. This difficulty has, however, been overcome by employing a paste composed of common whitening (carbonate of lime) mixed with a solution of one part of carbolic acid in four parts of boiled linseed oil, so as to form a firm putty. This application contains the acid in too dilute a form to excoriate the skin, which it may be made to cover to any extent that may be thought desirable, while its substance serves as a reservoir of the antiseptic material. So long as any discharge continues, the paste should be changed daily; and, in order to prevent the chance of mischief occurring during the process, a piece of rag dipped in the solution of carbolic acid in oil is put on next the skin, and maintained there permanently, care being taken to avoid raising it along with the putty. This rag is always kept in an antiseptic condition from contact with the paste above it, and destroys any germs that may fall upon it during the short time that should alone be allowed to pass in the changing of the dressing. The putty should be in a layer about a quarter of an inch thick, and may be advantageously applied rolled out between two pieces of thin calico, which maintain it in the form of a continuous sheet, that may be wrapped in a moment round the whole circumference of a

limb, if this be thought desirable, while the putty is prevented by the calico from sticking to the rag which is next the skin.* When all discharge has ceased, the use of the paste is discontinued, but the original rag is left adhering to the skin till healing by scabbing is supposed to be complete.

"We cannot, however, always calculate on so perfect a result as this. More or less pus may appear after the lapse of the first week; and the larger the wound the more likely is this to happen. And here I would desire earnestly to enforce the necessity of persevering with the antiseptic application, in spite of the appearance of suppuration, so long as other symptoms are favorable. The surgeon is extremely apt to suppose that any suppuration is an indication that the antiseptic treatment has failed, and that poulticing or water-dressing should be resorted to. But such a course would in many cases sacrifice a limb or a life. I cannot, however, expect my professional brethren to follow my advice blindly in such a matter, and therefore I feel it necessary to place before them, as shortly as I can, some pathological principles, intimately connected not only with the point we are immediately considering, but with the whole subject of this paper.

"If a perfectly healthy granulating sore be well washed and covered with a plate of clean metal, such as block-tin, fitting its surface pretty accurately, and overlapping the surrounding skin an inch or so in every direction, and retained in position by adhesive plaster and a bandage, it will be found, on removing it after twenty-four or forty-eight hours, that little or nothing that can be called pus, is present, merely a little transparent fluid, while at the same time there is an entire absence of the unpleasant odor invariably perceived

* In order to prevent evaporation of the acid, which passes readily through any organic tissue, such as oiled silk or gutta serena, it is well to cover the paste with a sheet of block-tin, or tinfoil strengthened with adhesive plaster. The thin sheet-lead used for lining tea-chests will also answer the purpose, and may be obtained from any wholesale grocer.

when water-dressing is changed. Here the clean metallic surface presenting no recesses, like those of porous lint, for the septic germs to develop in, the fluid exuding from the surface of the granulations has flowed away undecomposed, and the result is absence of suppuration. This simple experiment illustrates the important fact, that granulations have no inherent tendency to form pus, but do so only when subjected to a preternatural stimulus. Further, it shows that the mere contact of a foreign body does not of itself stimulate granulations to suppurate; whereas the presence of decomposing organic matter does. These truths are even more strikingly exemplified by the fact, which I have elsewhere recorded,* that a piece of dead bone, free from decomposition, may not only fail to induce the granulations around it to suppurate, but may actually be absorbed by them; whereas a bit of dead bone soaked with putrid pus infallibly induces suppuration in its vicinity.

“Another instructive experiment is to dress a granulating sore with some of the putty above described, overlapping the sound skin extensively, when we find in the course of twenty-four hours that pus has been produced by the sore, although the application has been perfectly antiseptic; and, indeed, the larger the amount of carbolic acid in the paste the greater is the quantity of pus formed, provided we avoid such a proportion as would act as a caustic. The carbolic acid, though it prevents decomposition, induces suppuration—obviously by acting as a chemical stimulus; and we may safely infer that putrescent organic materials (which we know to be chemically acrid) operate in the same way.

“In so far, then, carbolic acid and decomposing substances are alike—namely, that they induce suppuration by chemical stimulation, as distinguished from what may be termed simple inflammatory suppuration, such as that in which ordinary abscesses originate, where the

* See the *Lancet*, March 23, 1867.

pus appears to be formed in consequence of an excited action of the nerves, independently of any other stimulus. There is, however, this enormous difference between the effects of carbolic acid and those of decomposition—viz., that carbolic acid stimulates only the surface to which it is first applied, and every drop of discharge that forms weakens the stimulant by diluting it. But decomposition is a self-propagating and self-aggravating poison; and if it occurs at the surface of a severely injured limb, it will spread into all its recesses so far as any extravasated blood or shreds of dead tissue may extend, and, lying in these recesses, it will become from hour to hour more acrid, till it acquires the energy of a caustic, sufficient to destroy the vitality of any tissues naturally weak from inferior vascular supply, or weakened by the injury they sustained in the accident.

“Hence it is easy to understand how, when a wound is very large, the crust beneath the rag may prove here and there insufficient to protect the raw surface from the stimulating influence of the carbolic acid in the putty, and the result will be, first, the conversion of the tissues so acted on into granulations, and subsequently the formation of more or less pus. This, however, will be merely superficial, and will not interfere with the absorption and organization of extravasated blood or dead tissues in the interior; but, on the other hand, should decomposition set in before the internal parts have become securely consolidated, the most disastrous results may ensue.

“The next class of cases to which I have applied the antiseptic treatment is that of abscesses. Here, also, the results have been extremely satisfactory, and in beautiful harmony with the pathological principles indicated above. The pyogenic membrane, like the granulations of a sore, which it resembles in nature, forms pus, not from any inherent disposition to do so, but only because it is subjected to some preternatural stimulation. In an ordinary abscess, whether acute or

chronic, before it is opened, the stimulus which maintains the suppuration is derived from the presence of the pus pent up within the cavity. When a free opening is made in the ordinary way, this stimulus is got rid of; but the atmosphere gaining access to the contents, the potent stimulus of decomposition comes into operation, and pus is generated in greater abundance than before. But when the evacuation is effected on the antiseptic principle, the pyogenic membrane, freed from the influence of the former stimulus without the substitution of a new one, ceases to suppurate (like the granulations of a sore under metallic dressing), furnishing merely a trifling amount of clear serum, and, whether the opening be dependent or not, rapidly contracts and coalesces. At the same time any constitutional symptoms previously occasioned by the accumulation of the matter are got rid of without the slightest risk of the irritative fever or hectic hitherto so justly dreaded in dealing with large abscesses.

"In order that the treatment may be satisfactory, the abscess must be seen before it has opened. Then, except in very rare and peculiar cases,* there are no septic organisms in the contents, so that it is needless to introduce carbolic acid into the interior. Indeed, such a proceeding would be objectionable, as it would stimulate the pyogenic membrane to unnecessary suppuration. All that is necessary is to guard against the introduction of living atmospheric germs from without, at the same time that free opportunity is afforded for the escape of discharge from within.

"I have so lately given elsewhere† a detailed account of the method by which this is effected, that it is needless for me to enter into it at present, further than to say that the means employed are the same as those

* As an instance of one of these exceptional cases, I may mention that of an abscess in the vicinity of the colon, and afterward proved by post-mortem examination to have one communicated with it. Here the pus was extremely offensive when evacuated, and exhibited vibrios under the microscope.

† See *The Lancet* of July 27, 1867.

described above for the superficial dressing of compound fractures—namely, a piece of rag dipped in the solution of carbolic acid in oil, to serve as an antiseptic curtain, under cover of which the abscess is evacuated by free incision; and the antiseptic paste, to guard against decomposition occurring in the stream of pus that flows out beneath it; the dressing being changed daily till the sinus has closed.

“The most remarkable results of this practice in a pathological point of view have been afforded by cases where the formation of pus depended upon disease of bone. Here the abscesses, instead of forming exceptions to the general class in the obstinacy of the suppuration, have resembled the rest in yielding in a few days only a trifling discharge; and frequently the production of pus has ceased from the moment of the evacuation of the original contents. Hence it appears that caries, when no longer laboring, as heretofore, under the irritation of decomposing matter, ceases to be an opprobrium of surgery, and recovers like other inflammatory affections.

“Ordinary contused wounds are of course amenable to the same treatment as compound fractures, which are a complicated variety of them.

“If the severest forms of contused or lacerated wounds heal thus kindly under the antiseptic treatment, it is obvious that its application to simple incised wounds must be merely a matter of detail. I have devoted a good deal of attention to this class, but I have not as yet pleased myself altogether with any of the methods I have employed. I am, however, prepared to go so far as to say that a solution of carbolic acid in twenty parts of water, while a mild and cleanly application may be relied on for destroying any septic germs that may fall upon the wound during the performance of an operation; and also, that for preventing the subsequent introduction of others, the paste above described, applied as for compound fractures, gives excellent results. Thus I have had a case of strangulated inguinal hernia,

in which it was necessary to take away half a pound of thickened omentum, heal without any deep-seated suppuration or any tenderness of the sac or any fever; and amputations, including one immediately below the knee, have remained absolutely free from constitutional symptoms.

“Further, I have found that when the antiseptic treatment is efficiently conducted, ligatures may be safely cut short and left to be disposed of by absorption or otherwise. Should this particular branch of the subject yield all that it promises, should it turn out on further trial that when the knot is applied on the antiseptic principle, we may calculate as securely as if it were absent on the occurrence of healing without any deep-seated suppuration, the deligation of main arteries in their continuity will be deprived of the two dangers that now attend it, viz., those of secondary hæmorrhage and an unhealthy state of the wound. Further, it seems not unlikely that the present objection to tying an artery in the immediate vicinity of a large branch may be done away with; and that even the innominata, which has lately been the subject of an ingenious experiment by one of the Dublin surgeons on account of its well-known fatality under the ligature from secondary hæmorrhage, may cease to have this unhappy character, when the tissues in the vicinity of the thread, instead of becoming softened through the influence of an irritating decomposing substance, are left at liberty to consolidate firmly near an unoffending though foreign body.

“There is one point more that I would advert to—namely, the influence of this mode of treatment upon the general healthiness of an hospital. Previously to its introduction, the two large wards in which most of my cases of accident and of operation are treated were amongst the unhealthiest in the whole surgical division of the Glasgow Royal Infirmary, in consequence, apparently, of those wards being unfavorably placed with reference to the supply of fresh air; and I have felt

ashamed, when recording the results of my practice, to have so often to allude to hospital gangrene or pyæmia. It was interesting, though melancholy, to observe that, whenever all, or nearly all, the beds contained cases with open sores, these grievous complications were pretty sure to show themselves; so that I came to welcome simple fractures, though in themselves of little interest either for myself or the students, because their presence diminished the proportion of open sores among the patients. But since the antiseptic treatment has been brought into full operation, and wounds and abscesses no longer poison the atmosphere with putrid exhalations, my wards, though in other respects under precisely the same circumstances as before, have completely changed their character; so that during the last nine months not a single instance of pyæmia, hospital gangrene, or erysipelas, has occurred in them.

"As there appears to be no doubt regarding the cause of this change, the importance of the fact can hardly be exaggerated."

For Prof. Lister's cases exemplifying his plan of treatment, we must refer our readers to the original papers.

In a communication to the *Lancet* of Sep. 28, Dr. J. R. Wolfe, of Aberdeen, claims to have preceded Prof. Lister in experimentation with carbolic acid in wounds, and refers to a paper published by himself in the *Medical Times and Gazette*, of Nov. 25, 1865. This paper however, we observe, was primarily upon the use of the phenic acid in phthisis, and at the close, he, Dr. W., suggests that "its employment in dressing wounds will greatly lessen the risk of purulent and erysipelatous infection in our surgical wards." Dr. W. does not express any dissatisfaction at the credit awarded to Prof. L., but on the contrary, congratulates the profession that the subject was taken up by so able an experimenter and observer. He objects, however, to the infusorial theory as explanatory of the efficacy of the carbolic acid, and says, that after the experiments of

MM. Jouly and Pouchet, counter to those of M. Pasteur, the *pan spermatis*m hypothesis rests upon very debatable ground, and he is disposed to attribute the action of the carbolic acid entirely to its antiseptic properties, that is, its power of preventing organizable matter from passing into a state of putrescence.

As a contribution to the history of this interesting question, Dr. Geo. Derby, of the Boston City Hospital, publishes in the *Boston Medical and Surgical Journal*, Oct. 31, 1867, a case of compound fracture of the middle of the right thigh in a boy nine years of age :

"The external wound was on the anterior face of the thigh, and large enough to admit a finger, by which the ends of the broken bones could be touched. A good position was got by means of sand-bags and a five-pound extension weight. A solution of carbolic acid, in glycerine, equal parts, was then applied freely to the wound, all parts being touched which could be reached by a bit of sponge held with dressing forceps. No ether was used, and the application caused very little pain. The external wound was then covered with a piece of lint soaked in the same solution. On the following day, this was found to be firmly adherent to the adjacent skin. During the following four weeks this covering never became detached. Fresh pieces of lint soaked in carbolic acid were occasionally added to it, and the surface was daily moistened with the solution above named. A few drops of serum occasionally oozed from the edge of the lint, but not a drop of pus. At the end of four weeks the covering was removed, disclosing a round, superficial ulcer, half an inch in diameter, which in a couple of days was covered with a firm scab. From the beginning to the end of this case there was no constitutional disturbance, and in every respect the patient's condition could not have been better had the fracture been simple."

Dr. Derby suggests that in opening abscesses a jet of carbolic acid spray be thrown upon the point of incision. The access of infusoria would thus be more

effectually prevented than by the plan of Mr. Lister above described.

ART. 5.—*Aneurism of the right Subclavian Artery treated by direct Pressure on the Arteria Innominata.*

In the *Medical Press and Circular* for July 3 and August 7, 1867, Mr. Porter, Surgeon to the Heath Hospital of Dublin, reports a case of aneurism involving the three portions of the subclavian artery. The patient had also another aneurism of the right femoral close to and passing above Poupart's ligament.

"As the subclavian aneurism was evidently thinning and threatening soon to become diffused or burst externally, Mr. Porter considered his a fair case to give him the chance (although unpromising) of a cure by occluding the artery on the distal side of the tumor. He therefore decided upon attempting to obliterate the aneurism by placing an acupressure needle under the axillary artery in its first stage for fifty hours. The general tendency to aneurism in his system induced Mr. Porter to prefer giving this mode of closing the vessel a trial, instead of throwing a ligature round it, which might, in the first instance, suddenly cut through the artery if diseased, or, when coming away, be followed by fatal hæmorrhage.

"June 26, 1867.—Mr. Porter laid bare the axillary artery in its first stage, after an external incision, four inches in length, extending in a curved direction inward, from the junction of the deltoid with the greater pectoral muscle, and at a level of half an inch below the clavicle. He then isolated the artery with an aneurism needle, and passed a silver probe slightly bent beneath it, and bridged over the vessel with a loop of wire, after the manner of Sir James Simpson's *third* mode of acupressure. The tumor immediately became reduced one-third in size, and all pulsation in his brachial and radial arteries ceased. The patient was then removed to bed, and a small bag of ice applied to the tumor."

On the 28th, the probe and wire were removed without hæmorrhage. The tumor was smaller and more firm, but the pulsations had not entirely ceased. The wound healed perfectly and the man was up and walking about in three weeks; but the pulsations gradually returned, and he became as strong as before the operation.

As the disease was increasing rapidly, Mr. Porter determined to attempt the cure by placing direct pressure on the innominate artery.

"July 31.—Mr. Porter laid bare the vessel after a tedious and careful dissection, which occupied nearly forty minutes. The operation he selected was almost similar to that performed by Mott. Instead of using the acupuncture needle and wire, as on the former occasion, he employed a most ingenious instrument invented by Doctor L'Estrange, which somewhat resembles a double aneurism needle without eyes. It is furnished with a moveable handle. One blade is first carried under the vessel, and the second is then passed down on the artery, and is made to compress it like the manner in which the jaws of a lithotrite are closed, with the exception of the blades of this instrument being perfectly smooth and rounded. The blades are approximated by means of a screw, and when sufficiently brought together the handle is removed, leaving the needle in the wound. The patient bore the operation well, and all pulsation in the tumor was arrested by the instrument. He did not suffer the slightest inconvenience from shutting off the current of blood from that side of his head. A bag of ice was then applied to the tumor.

Aug. 2.—Mr. Porter removed the needle; no blood followed, but pulsation returned strongly in the aneurism.

The case is, we believe, the first on record in which occlusion of the innominata has been attempted by pressure without ligation.

ART. 6.—Punctured Wound of the Knee-Joint treated by Compression of the Femoral Artery.

IN the August number of the JOURNAL we noted a case of acute inflammation of the knee-joint, following a lacerated wound, and treated at the suggestion of Mr. Maunder of the London Hospital, by the application of a ligature to the femoral artery. Acting upon the same principle, viz., the shutting off the arterial circulation, and thereby controlling the inflammation, Mr. Arthur Jackson (see *Lancet*, June 29, 1867) had previously applied the tourniquet to the femoral artery in a case of inflammation from punctured wound of the knee-joint. This tourniquet was kept applied for forty-eight hours, when it became necessary to remove it on account of the pain produced by the pressure; the inflammation had subsided and the patient made a rapid recovery. Mr. J. claims for the tourniquet advantages over the ligature, from the fact that its use, if properly applied, is not at all dangerous, while ligation of the arteries is a serious operation, and occasionally followed by gangrene; and again, the supply of blood is not so suddenly cut off as in cases of ligation, and the parts are not required to await the establishment of the collateral circulation before receiving the proper supply. On the other hand, the tourniquet may impede the venous circulation, but it appears easy enough to obviate this difficulty by proper construction of the instrument.

Dr. David L. Rogers, formerly of this city, suggested the ligature of arteries for the cure of inflammation of joints many years since. In the summer of 1861, Dr. R. was attached to the Army of the Potomac, and was most persistent in his advocacy of this plan of treatment, as almost any medical officer who had any professional intercourse with him will doubtless remember. The operation was, during the first Peninsular campaign, performed at Dr. Rogers' suggestion a number of times, but we regret our inability to report

the results, as the cases, we believe, have never been published.

ART. 7.—*Puncture of the Bladder.*

DR. B. F. HART, of Marietta, Ohio, in a private letter to a friend, reports a case of successful puncturing of the bladder after all the ordinary means for relief had been resorted to without avail. The operation was performed through the rectum by an ordinary trochar and canula. The cause of distention was an impassable stricture.—*Medical Record.*

Dr. John M. Mackie of New Bedford also reports (Boston *Medical and Surgical Journal*, October 31, 1867) a case of distended bladder from retention of urine owing to an impassable stricture. No urine had been passed for thirty hours, and the bladder having risen so high in the abdomen, as to preclude all danger of wounding the peritoneum, the supra-pubic operation was performed by a medium-sized trochar and canula. While the urine was still flowing, a small gum catheter was passed through the canula into the bladder, and there allowed to remain, the canula being withdrawn over the catheter. A full dose of morphine was administered after the operation. The following day the patient was free from pain and able to pass his urine naturally. The catheter was withdrawn, and on the fourth day the external wound was entirely healed.

ART. 8.—*The Safety of the Median Operation of Lithotomy.*

IN the *Lancet* for August 3, 1867, Mr. W. L. Crowther adds his testimony in favor of this operation, and justifies his opinion by the results obtained in his own practice, independently of the theoretical advantages which the operation presents over other methods. The paper is confirmatory of the views put forward by Dr.

Markoe in this JOURNAL for April, 1867. Mr. C., in his after-treatment, leaves an elastic catheter in the wound for eighteen or twenty hours—a procedure in our estimation unnecessary and injurious.

ART. 9.—*Tumor of the Larynx—Successful removal of.*—
(*Gazette Médicale*).

Dr. Edward Fournie, on the 20th May, 1867, removed a fibro-plastic tumor of the larynx, of the size of two and a half centimeters, by means of a curved forceps expressly made for the case by MM. Robert and Colin. The tumor filled up the laryngeal cavity. There had been complete aphonia for four years, and respiration was so difficult that it was necessary to perform tracheotomy to save life.

Varia.

THE SLEEPING GIRL AT HICKMAN, KY.—In the *Varia* of the JOURNAL for August, appeared a brief notice of a remarkable case of somnolency.

In the year 1865, I was practicing at Hickman, Ky., and having heard of this case was exceedingly anxious to investigate it, and determine if possible the true condition of the patient. Although assured by some of the most reliable and educated citizens of the vicinity that no deception was being practiced, I rather looked upon the affair as a *canard*, until July 20, 1865, when in company with Drs. Catlet and Blanton, I called upon the family of the young lady, in Obion Co., Tenn., about ten miles from Hickman City, and while there observed the following conditions. The history of the case was given me by the mother, and carefully noted down at the time.

Miss Susan C. Godsy, æt. 22, of bilious temperament, has been in a somnolent state since 1849, being

then eight years of age. Up to within a year of that period she had enjoyed excellent health, she being then attacked with intermittent fever, in the treatment of which opium was extensively used. This was erroneously supposed by Dr. C. to have induced her present condition. Some few months after recovery, excessive somnolency began to develop itself, which in 1857 became more profound, after an attack of scarlatina anginosa, followed by measles. The lucid intervals will occur from four to six times a day, and last from 5 to 10 minutes, at which periods she will generally take some nourishment and then relapse into a profound slumber, from which it is impossible to arouse her.

In point of general physique, there is nothing specially worthy of note, except the comparative plumpness during such a long maintenance of the recumbent posture with very little muscular exercise. She is about the average height of her sex, with cranial development possibly a little in excess. The hands and feet are both exceedingly small, the nails of which, the mother positively states, have not grown any since her present condition began.

Dr. C. thought that there had been an arrest of development of the second lumbar vertebra, at which site she complains of pain when awake, but I was unable to discover any difference between it and the others. The heart's action and sounds, as far as could be determined, were entirely normal.

The catamenia commenced between the fourteenth and fifteenth years, and are generally very irregular and painful; but when anything like regularity is attained the flow recurs about every six weeks.

A uterine examination was earnestly solicited, but was positively refused. None of the special senses are in the least diminished or perverted; there has been neither squinting nor excessive dilatation of the pupils. The irides both respond readily to the stimulus of light. While interrogating the mother, a convulsive movement of the entire body took place, apparently

more violent in the upper than in the lower extremities. The arms, hands, and head, were in rapid motion. At the subsidence of this, consciousness was established, and the young lady herself being questioned about her condition, replied in a clear and comprehensible manner, though using merely monosyllables. When asked if she suffered any pain in her head she replied, yes, but without locating it; if in the back, yes; if about the chest or abdomen, no. She was lucid about five minutes, during which time a number of questions were asked, but without eliciting any further information. She took no food or liquid during this interval of consciousness, and went to sleep while being questioned by myself, remaining in that state during the rest of the time we were there, about half an hour, her rest being perfectly tranquil, with the exception of one slight convulsive movement.

The questions now arise, What is the cause of this strange condition? Where is the disease, if any, located? Opium was certainly not the cause, as supposed by Dr. C., nor can we well suspect a morbid growth, either in the brain, or from the internal face of the cranium, for we find all the physiological functions of the encephalon unimpaired. Can we look to the uterus and appendages for a solution of the enigma? I think we may, for the subjective symptoms point clearly to a greater deviation from the normal action there than anywhere else, though how much of this is dependent upon the want of sufficient exercise it is impossible to say. Had an objective examination of the uterus been permitted, it is possible much might have been discovered, for late researches prove that *all* of the remarkable perversions of the normal routine of life have been found to exist in women, and are often referable to some pathological condition of the female reproductive organs.

CHAS. A. HART, M. D.,
New York City.

PROPAGATION OF SYPHILIS BY THE MOUTH.—M. Dechaux, in a recent number of the *Gazette Médicale de Lyon*, gives an interesting narration of the propagation of syphilis by the mouth at a bottle factory to which he is attached, at Montluçon. It seems that the glass-blowers at such establishments are of a nomad character, wandering from factory to factory in search of work. One of these men, not having the best of reputations, had in vain sought for employment, having been rejected at various workshops. At last, the workmen at Montluçon, touched by some sonorous phrases, such as “he demanded the sacred right of labor in the name of that necessity which had so long weighed him down,” agreed to allow him to join one of the working parties into which the *employés* are divided, his business being to commence blowing the bottles, and handing them to others to continue the same operation, so that they passed hot and moist from his mouth to the mouths of his neighbors in rapid succession. At the end of the first week four workmen had bad mouths, and the next week four others, and a little later two more. As soon as any suspicion was excited, the man was submitted to examination by M. Dechaux, avowing that he had had syphilis a long time since, but had been effectually cured of it in the hospital. On examining his mouth nothing abnormal could be perceived save a small crack on the lower lip, unaccompanied by induration, and a common-enough appearance among glass-blowers. The workmen on their part instituted an examination, and they as well as the doctor pronounced him free of any disease prohibitive of his working with them. Still the men above alluded to exhibited chancrous sores at the commissures of the lips and other parts of the mouth and throat, and enlarged submaxillary glands. A more searching examination of the man's prior history now discovered that during the last four years he had infected workmen in the various bottle factories he had entered, and had been driven from them; and that, in fact, the disease

was seated in the nose, the bones of which were the seat of caries, giving rise to foetid suppuration. And yet this man, carrying this poison about with him, was allowed to enter factory after factory, for, says the narrator, with abundant *naïveté*, "had the nature of his complaint been inscribed on his *livret*, it would have infallibly prevented his getting employment." However, in consequence of such delicacy, the workmen who had accepted him as a partner, became the subjects of chancres of the lips; these, in five of their number, reaching the size of one or two franc pieces, and being attended with inflammation, swelling, and induration. They continued in their acute stage for about twenty days, and were not entirely removed until from thirty to sixty days—suspicious-looking ulcerations reappearing in some for a still longer period. In all there was induration of the submaxillary glands, which lasted for from forty to ninety days. In five of the cases the throat was affected, in six there was cutaneous syphilis, and in four, pustules or vegetations about the anus. As may be supposed, the health of some of these workmen (eleven in number) was very seriously damaged, and in none of them could work be resumed from forty days to three months. In two instances in which it was attempted too soon, the disease was communicated to others.—*Paris Letter M. T. & G.*

APPOINTMENTS.—Dr. Calvin Ellis, late Adjunct-Professor in the Medical School of Harvard College, has been appointed Professor of Clinical Medicine in place of Dr. Henry J. Bowditch, resigned.

Long Island College Hospital.—Prof. Joseph C. Hutchinson has resigned the chair of surgery, and Prof. E. N. Chapman, that of obstetrics in this institution. The first vacancy is filled by the transfer of Prof. Enos from the chair of anatomy, to which Dr. Cordyon L. Ford is appointed. The vacancy in the obstetrical chair is filled by the appointment of Dr. Foster Swift, of this city.

College of Physicians and Surgeons.—Dr. D. Tilden Brown has been appointed Professor of Psychological Medicine and Medical Jurisprudence.

DISCUSSION ON SYPHILIS IN THE INTERNATIONAL MEDICAL CONGRESS.—The report in the *Union Médicale* of the proceedings of the International Medical Congress gives a highly graphic description of the sessions of the 23d and 26th of August.

The congress, it seems, was pursuing the course of its labors in peace, and was even a little sleepy, when *syphilization* intervened, and behold a war broken out! The brand of discord was thrown into the midst of the pacific assembly. The reporter declares that he never before had been present at a congress where the sessions were more noisy and stormy. The audience, ardent, passionate, tumultuous, was divided into two camps; the one for, the other against syphilization. The latter, the more numerous, supported M. Ricord with loud acclaim. For Ricord, "these two sessions were, from beginning to end, a long ovation, and a continuous triumph. The illustrious syphilographer may be said to have received on those memorable days the acclamations of the entire world, the crown of his splendid career." The other party, smaller in number, but with no less energy, sustained by voice and gesture M. Auzias-Turenne, who displayed in this unequal strife a talent, an activity, a firmness, and a warmth of conviction which it was impossible not to admire, though without sharing his opinions.

In the midst of the general excitement, a ludicrous incident occurred, to change for an instant the current of feeling. M. Ricord was saying that "he could desire nothing better than to believe in syphilization. From the outset of the alleged discovery of M. Auzias-Turenne he had said, if syphilization were a reality it would follow that the soft chancre was to the hard chancre what vaccinia is to variola. M. Auzias-Turenne would be the Jenner of syphilis, and would have

statues erected to him. But, unfortunately, the vaccination of syphilis has not yet been found, and the pox still awaits its Jenner. If M. Auzias-Turenne believed in syphilization, let him syphilize himself. Quite enough patients had purchased with their health—even with their lives—the pretended benefits of syphilization.” At this moment, a member of the convention, getting up on one of the benches of the amphitheatre, and stretching out his arms, cries out twice, in a voice of thunder, “I am a physician—syphilized—and I am in good health.” (Prolonged merriment.)

(A voice from the auditory.) “Why has not M. Auzias-Turenne syphilized himself?”

(The previous speaker.) “M. Auzias-Turenne has not renounced marriage. As for me, I have renounced it. What father, what mother, would be willing to give a daughter to a syphilized man?” (Laughter.)

M. Ricord.—“Nay, if syphilization be a guarantee, syphilized subjects would be much sought for as family men.” (Laughter.)

M. Auzias-Turenne.—“I have offered to make experiments before a commission; but my demand has always been rejected. It is desired that I make the experiments on my own person. I refuse from self-respect, not being willing thus to place myself at the disposal of M. Ricord and M. Bouillaud, for the sole purpose of gratifying their curiosity, and being afterward the butt of their pleasantries.” * * *

In the midst of a warfare of words between M. Ricord and M. Auzias-Turenne, M. Crocq remarked that the pending discussion was widely divergent from the question of the day, which was this: *Is it possible to propose to the different governments any effectual measures for checking the spread of venereal diseases?* (A delegate from the Belgian Government.)—Would it be acceptable, he asked, for him to propose to his government to syphilize all the Belgians in order to check the spread of syphilis in Belgium? (Laughter.) M. Crocq de-

manded that the discussion be closed. It was, however, continued through the succeeding session.

Subsequently, there was a prolonged debate upon legislative enactments having in view the eradication or diminution of venereal diseases. In the remarks on this question, it appeared that the registration and regulation of prostitution had been a failure, even in Paris, where the registered are far outnumbered by the clandestine prostitutes.—*Boston Med. and Surg. Journal.*

RESULTS OF WAR.—In the course of the international conferences which have just terminated at Paris relative to certain proposed modifications of the treaty of Geneva of 1864, for ameliorating the condition of the sick and wounded in time of war, a letter was read by the delegate from the Austrian Ministry of War, which contained the following statement. At the date of the letter, August 14, 1867, there remained 84 Austrian officers, and 12,277 soldiers, who were engaged in the war of 1866, of whose fate nothing whatever was known. They simply appear in the official documents of the army as "*disparus*." For a long time the families and relatives of this large number of men were kept in anxious uncertainty as to whether they were prisoners of war in Prussia, wounded and in Prussian hospitals, or had been killed on the field of battle. They only know now that they are dead, because they have never been able to obtain any tidings of them. Many of them may have been drowned; but the probability is, that the greater number were shot and buried without any record being made of their regiments or names. The object of the letter from the Austrian Minister of War was to bring before the Conference the subject: to consider if some international plan might not be adopted for identifying all soldiers dying in time of war, and insuring that in no case should any officer or soldier be buried without note being duly taken of his name, so that it might afterward be communicated to the proper authorities of the country to

which he belonged. It did not appear whether the "84 officers" mentioned by the Austrian Minister of War, included "non-commissioned officers," or referred only to commissioned officers. Under any circumstances, what an incalculable amount of misery is indicated by the figures and facts above named.—*Brit. Med. Jour.*

THE HOWARD AMBULANCE.—It must be a source of gratification to the profession in this country, to know that at the recent Exposition a thorough competition of many nations has resulted in favor of an American ambulance, and to the inventor himself it must be especially satisfactory, by reason of the fact that his ambulance has been studiously ignored in all our governmental reports on this subject. It would seem that it was necessary for this ambulance to go abroad and be compared with others to have its merits recognized. The following letter from Baron Larrey, the distinguished medical chief of the French army, will explain itself:

INSPECTION OF THE "HEALTH SERVICE" OF THE ARMY,
PARIS, October 13, 1867.

DR. HOWARD.—I am happy to inform you that your ambulance carriage has been examined and tested by the 1st section of the International Exposition, as verified by the official "Procès Verbaux," pages 8 and 21. Some details of your ambulance have been slightly criticised, but as a whole, it has been unanimously approved. As a vehicle, also, it has been considered as one of the best in the "Exposition."

Finally, I am happy to announce to you, agreeably to the notification which the Count de Beauford, the Honorable Secretary of the Commission has given me, that the carriage bearing your name has obtained the silver medal. You would now do well to publish a notice of your ambulance, with plates, which would give an exact description of the invention as comparing it with other ambulances. Accept, dear Dr. Howard, the assurance of my fraternal sentiments. **BAR. LARREY.**

To Dr. BENJ. HOWARD, 45 West 31st St., New York.

NEW YORK MEDICAL JOURNAL:

A MONTHLY RECORD OF
MEDICINE AND THE COLLATERAL SCIENCES.

VOL. VI.] JANUARY, 1868. [No. IV.

Original Communications.

ART. I.—*Experimental Contributions to the Toxicology of Rattle-snake Venom.* By S. WEIR MITCHELL, M. D.,
Member of the National Academy of Sciences.

IN the year 1860 I published, through the Smithsonian Institution, a paper of 117 quarto pages, upon the Anatomy, Physiology and Toxicology of the venomous organs of the Rattle-snake. From the days of Fontana, 1781, no researches of any moment had added to our knowledge of the poison of serpents; and I had, therefore, the pleasure of contributing a large amount of completely new information to the modern history of animal poisons.

Since the date of my Smithsonian essay and of a pamphlet on the treatment of snake bites, which I published in the *North Amer. Med. Chir. Rev.*, March, 1861, I have suspected that in at least one point I was partly, and in another, altogether wrong, so that it became an imperative duty to correct my former experiments by a second, and more careful examination of the dubious conclusions which I had committed to print.

As usually happens with those who question Nature by the fertile method of experiment, I was gradually led aside into by-paths, which proved to be of the utmost interest, so that, besides the questions with which I started, I have found myself able to answer many others of equal, and some of far greater interest. Perhaps the most valuable of all of the conclusions which I have reached in this present research, regards the ultimate mode in which the venom affects the economy of animals.

My friend, Professor Dalton, in his eloquent defence of vivisection, has been pleased to allude, in very flattering language, to my former research, as an example of the value of that method; or, rather, of the use of animal life in scientific research. The present investigation has also been conducted at the cost of a large expenditure of the lives of birds, dogs and rabbits, for which I am responsible to my own conscience, and to the Maker, who has endowed us with the will and the power to search into the secrets of His universe. To men of science, I need not say that the torture inflicted has been used with all possible thoughtfulness, while

at the same time I must add that it was usually impossible, in these experiments, to avail myself of chloroform, which would have introduced into my investigation new and obscuring elements. I have said these few words in apologetic preface, only because I respect the motives of the many ignorant and well meaning persons, who have recently sought to take away from us the chief aid of the modern physiologist.

The serpents used in this inquiry were obtained, through the kind agency of the Smithsonian Institution, in the mountains of Virginia, where they are found abundantly by the persons who collect bark in the early summer months. They were confined in a cage, five feet deep, and well ventilated by apertures guarded with wire gauze.

I have never been able to induce my snakes to eat ; but water I have found absolutely essential to their health. It was supplied fresh every day in a large shallow bucket, in which they seemed to have great delight in bathing.

I am accustomed to handle the snakes by means of a long staff, arranged with a thin leathern strap carried in a loop over its end, and capable of being tightened by drawing on a cord. Using this as a lasso, I was able to snare any serpent at will, and examine it at my leisure. To obtain the venom, I held the snake by this method, and lifting its fangs with the edge of a saucer, or watch glass, with the thumb and fore-finger of the other hand, I compressed the venom-glands so as to press the poison out through the fangs. It is necessary to be careful not to let the fingers slip over the edges of the upper jaws while ef-

fecting this little operation. Owing to an accident of this kind, I recently wounded my thumb with the sharp teeth of the snake's lower jaw, but no evil result followed.

The subjects with which I shall deal in the following paper, are these :—

1. What is the dose of venom fatal to pigeons?
2. Why is venom harmless when ingested by animals?
3. What surfaces have the power to absorb venom?
4. How does it act directly on the tissues?
5. Does it alter the blood, and how?
6. Is the venom poisonous to the serpent itself?
7. Is it capable of being physiologically neutralized by any of the agents introduced into practice since my last paper, in 1861, such as the sulphites and carbolic acid?

I meant to make large use of pigeons in these researches, on account of the ease with which birds are influenced by venom poisoning; and it was, therefore, important to determine at the outset, the minimum dose capable of destroying life. For this purpose I made the following experiments: Six pigeons, all of the present year's growth, and varying in age from three to five months, received each of them, by subcutaneous injection, one drop of fresh venom with ten of water under the skin of the breast—as nearly as possible in the same situations. All of them died within twelve hours, and three within two hours.

A second set, four in number, and varying in age between two and four months, received each, in like manner, half-a-drop of venom, diluted with a few drops

of water. All of them were found dead the next morning.

Four other pigeons, of nearly the same age as the last set, were treated in precisely the same manner, with one-fourth of a drop of venom. One of these died in three minutes, and the others were found dead after seventeen hours.

Below this amount of venom the fatal result, though frequent, was uncertain, while it was, at all events, rare to see an escape when one-fourth of a drop was used.

As to the symptoms, I have only a few remarks to add, in completion of the elaborate details of my former papers. The novel point refers to the possibility of death by hæmorrhage from the fang wounds. This accident, unlikely to occur in large quadrupeds, sometimes takes place in pigeons; and at all events, loss of blood may so reduce the strength of small animals as efficiently to aid the after action of the poison in producing a fatal result. The primary swelling which surrounds the wound, was at one time conceived to be inflammatory; but, as I first pointed out, it is entirely composed of blood, the hæmorrhage being brought about and sustained by two sets of causes, which I shall have occasion at another place to dwell upon more specifically.

The next two questions which come before us, regard the power of the various surfaces to absorb venom, and especially the remarkable fact, already well-known, that this poison is inert when placed in the stomach.

Experiment. To each of three pigeons I gave internally three drops of venom during digestion. No effects were noticed.

Experiment. To the same pigeons, after a fast of twelve hours, I gave four drops of venom. No evidence of poisoning appeared.

Experiment. To two fresh pigeons, fed scantily, I gave six drops of pure venom, for three successive days, without any result.

Let us add to these facts the authority of Mangili, Redi, Mead and Russell, who reached the same conclusion which I feel authorized to draw from my own experiments, and we have before us a strong body of proof that the venom is innocuous if carried into the stomach.

Fontana, on the basis of a single experiment, arrived at an opposite opinion; but he does not state exactly how he gave the poison, or that he took any precautions to prevent it from passing into the wind-pipe; an accident which might occur in forced feeding, and which I have already shown to be capable of causing death.

My own plan of giving the venom was to place it in the stomach by the aid of a glass-tube, carefully rounded at the end, the utmost care being taken to avoid injuring the surfaces.

The experiments of Professor Mangili * with viper poison, may be looked upon as settling the question, so far as regards that serpent. Not only did he give the venom to animals in large doses, but he records that one of his assistants swallowed all the venom which could be extracted from four large vipers, and suffered

* 1. *Giornale di Fisica Chimica*. Vol. ix, p. 458. 1817. This journal does not exist in any of our libraries. I quote at second-hand from Orfila, *Tox. Gen.*, 5 ed., p. 852.

in no way from this bold experiment. I had little doubt that what was true of one snake poison would be true of all the rest; nor were my anticipations other than correct, in respect at least to the rattle-snake, as the experiments already related, and those presently to be told will amply show. But besides determining this fact, with respect to crotalus poison, I desired to understand *why* it was that the poison, when swallowed, caused no bad symptoms; a point hitherto unexplained. Perhaps I should also add, that in two of Professor Mangili's experiments, the animals which had ingested venom, seemed to him to become, for a time, weak and sluggish. Lark's, thus treated, he describes as falling, for a little while, into a condition of stupor and inertia. As I do not quote the original paper, I cannot tell what stress to lay upon this statement. Certainly no such phenomena appeared in any of the animals observed by me.

The series of observations about to be related, had therefore a double purpose; first, to give additional security to the conclusion that venom may be harmlessly ingested, and, also, to aid in settling the reasons for this singular immunity.

Experiment. The crop of a large pigeon, having been opened and cleaned and washed, I placed in one of its pouches four or five drops of pure venom, and watched it for an hour. No symptoms of any mischievous nature appeared. The membrane, in contact with the venom, remained unaltered as to tint, and underwent no other change until, with a fine needle, I made several punctures. In a moment after, the mucous surface was

thrown into rugous eminences by the contraction of the muscular layers, and presently points of congestion appearing, quickly widened into hæmorrhagic effusions, and death followed within two hours.

Experiment. I injected into the cloaca of each of three pigeons, five drops of the venom, diluted with a few drops of water. In one case the pigeon passed a little bloody mucus and vomited; but after the lapse of a day was as well as usual, a result which somewhat surprised me. I do not think that I wounded the part in this bird, although this may have happened. The others did not suffer in any way.

It thus appeared, still more clearly, that the venom does not act through the mucous surfaces of the stomach, or the rectum, either during digestion or fasting.

The fact then is certain, as regards rattle-snake venom; but how shall we explain it? The active portion of the venom is an albuminoid body: most akin, in its chemical behavior, to the ferment of gastric juice. It is soluble in water, and precipitable by alcohol; this precipitate being capable of solution anew in an aqueous solvent. We might, therefore, suppose either that it is so altered by the gastric juices as to become innocuous, or else that it is incapable of osmosis through a mucous membrane.

The problem, having assumed this shape, I set about settling it in the following way:

Experiment. I placed four drops of venom with a little water, in an inch of the small intestines of a rabbit, and, after carefully tying the ends of the gut, secured it within a cleft made in the breast

muscles of a pigeon. After an hour and a half I removed it, no bad symptoms having occurred.

Knowing, as we do, the remarkable solubility of the venom in water, its utter refusal to permeate the mucous surfaces seemed to me most surprising. In fact, I could not help suspecting that there must be some other provision to make it innocent in the intestinal canal, because I could not see how an albuminoid substance was finally to escape digestion, and ultimate absorption, whilst if absorbed, it must be in some harmless shape, or mischief would be sure to follow.

To settle then the question as to the influence of gastric juice, I made a gastric fistula in a dog, and was able to collect, on the third day, an abundance of the needed secretion. The juice employed was intensely acid, and at first contained some bile, which after a day or two was no longer met with.

Experiment. Twelve drops of fresh venom were added to sixty minims of gastric juice, causing a slight coagulation, which, on application of heat, became dense. The temperature was kept at 97° to 101° F., during an hour and twenty-five minutes. Half of the whole amount was then thrown into the breast muscles of a pigeon, which died in fourteen minutes.

On the following day I found that the fluid in the test tube had allowed the heavy precipitate to settle—a clear layer resting above it. This supernatant liquid was injected into the breast of a pigeon. Shortly after the bird showed signs of nausea, but exhibited no marked feebleness, and was well next day and thereafter. The

sediment remaining, represented about six drops of venom, to which, after adding sixty minims of gastric juice, heat was applied for an hour and twenty minutes, so that at the close of this time the venom had been digested, at about 100° F. in two fresh portions of gastric juice during nearly three hours. Half of this, injected into the breast of a large pigeon, gave rise to no evil result, except slight local discoloration. The rest of the deposit was used in like manner in another pigeon, and with similar negative results.

It would appear from these two experiments, that digestion of the venom in fresh portions of gastric juice, during three hours, modified its toxic power.

Experiment. Five drops of venom were heated to 100 degrees F., with twenty-five minims of gastric juice during one hour and a half, and the whole amount was thrown into the left groin. Death took place in six hours, a long delay considering the dose of the venom.

Upon studying carefully the somewhat contradictory conclusions of the above related set of experiments, I could perceive only one point in which I might have erred. The gastric juice employed was so cloudy from mixture with minute portions of the *debris* of the last meal, that I filtered it before using it, a measure which might have affected its efficiency by retaining on the filter a share of the stomachal ferments. At all events, I could find no other cause of quarrel with my process, and the amount of poison had been amply large enough in each case to insure a hasty death; unless a portion of the delay in the cases which were fatal after some

hours could be regarded as due to the fact, that the coagulated venom might be less readily absorbed than when in a natural and fluid state. As to this I was fully prepared to speak. I had shown long ago, that alcohol, iodine, tannin, and other agents which alike coagulate the *crotaline*, do not destroy its power to poison, and only modify the local symptoms by checking the usual profuse hæmorrhage. The pigeons died, and that in the usual brief period, so that unless there could be shown to be something altogether peculiar in the coagulum formed by the gastric juice, I could not justly regard the half solid form of the venom as alone accountable for the delayed deaths, or the two recoveries.

To relieve myself of doubt, I made a second series of experiments, which differed from the first set, inasmuch as the dog was now in better health, a week having elapsed since the fistula was formed. He had recovered his appetite, there was no longer any blood in his gastric juice, as had occasionally chanced during the first three days, and finally the stomachal fluids were free from bile, and were used without filtration.

Experiment.—Three drops of fresh venom were put in a test-tube with forty minims of gastric juice. It then received the following treatment: On the first day it was kept at 100° F. during an hour and a half. Then it remained in the covered test-tube at the varying summer heat of from 78° F. to 90° F. during two days, when again it was heated for an hour and a half to 100° F. Injected entire

into the breast tissues of a pigeon, death followed in twenty-five minutes.

Of the same specimen of venom one-half had been allowed to dry—of this again one-half, that is about one and a half drops, were lodged in the thigh of a pigeon, causing death in twenty-one minutes.

Experiment. The rest of the venom, one drop and a half, was treated during three hours with gastric juice, at a temperature of 97° F. to 101° F., and then injected as usual into the breast of a pigeon. Death followed in one hour and eight minutes.

It was now clear to me that in at least two cases the gastric juices had modified the poison, and rendered it innocent; in others I had failed of this result, and yet, could find no especial reason for the failure.

In one respect it was impossible to imitate externally the usage to which nature submits the ingested venom; for while I treated it only with small amounts of gastric juice, she would subject it to long continued and freshly supplied portions of the stomachal fluids, and would afterwards act upon it with the duodenal liquids.

I resolved my difficulties by the following experiment.

Experiment. I dissolved three grains of dried venom* in sixty-three minims of water; of this three drops were injected into the groin of a pigeon, which died in fifteen minutes. What remained was competent, therefore, to

* I have used venom after five years keeping, and found it uninjured.

kill at least twenty pigeons, and probably thirty. I placed it entire in the crop of a vigorous pigeon about four months old, unfed during twelve hours. This enormous dose, in a stomach greedy for fluid and food, caused no more effect than so much water. The bird ate, drank, flew and walked as usual. It was lightly fed, and so guarded as to enable me to collect all of the excreta at the close of twenty-four hours from the time the venom was swallowed. The mingled urine and fæces were treated with water and filtered, the fluid escaping being several times allowed to pass through the filter. If any of the venom had been present in a soluble form, it must have been carried away in the washings. The pigeon showed no signs of poisoning, but the tissues in the neighborhood of the injected material became swollen and œdematous within twenty-four hours. The bird now refused food, and the swelling increasing, it died at the end of forty-eight hours.

The pigeon which had been fed with venom was killed at the twenty-fourth hour, and the whole length of the gastro-intestinal canal washed with the utmost care, the surface being gently scraped with the handle of a scalpel, that nothing might escape. The thick fluid so collected was allowed to stand during twelve hours and was then filtered. The cloudy liquid which escaped was separated into halves and placed in the tissues of two pigeons. The amount used was so large as to necessitate three injections in each case. As in the former instance, the breasts swelled, became filled with serous effusion, and death followed in two and four days respectively.

Now as the phenomena observed in these cases were unlike those of venom toxication, it seemed to me possible that I might have caused an ordinary septic poisoning by the agency of the decomposing fluids of the excreta and of the gastro-intestinal fluids. I therefore repeated the experiment.

Experiment.—Gave internally three grains of dry venom in one drachm of water (equal to over twelve grains of fluid venom) to a pigeon. I fed it lightly for forty-eight hours, collecting and drying the excreta. It was then killed and the intestinal contents collected with care. These latter were treated simply with water cast on a filter. After repeated washing the product was slowly evaporated at 100° F., until about two drachms were left. Of this I injected two-thirds into the groin and breast of a pigeon. Death ensued in forty-six hours. *P. M. inspection.* The tissues contained no extravasated blood, but were boggy and filled with gas and serum. Where the injection had entered a muscle, there was a ragged ill-smelling cavity. The viscera showed no ecchymoses, and the blood, which held some small clots, coagulated further upon exposure.

The excretions, which in this case were the product of two days, were dried, powdered, and treated with water for twelve hours, temperature 58° F. The mass was then cast on a filter, and the filtrate after evaporation to one drachm, (at 100° F.,) cast into the breast of a pigeon. On the second day, finding the breast swollen and full of gas and fluids, I made an incision to allow of their escape, but found the bird dead on the afternoon of the third day. The post-

mortem appearances were in all respects like those of the former cases.

Experiment.—I gave a pigeon six and a half grains of dry venom, equal to twenty-six grains of natural venom, dissolved in water. No evil resulted. I hoped that by using this large excess of poison, a smaller dose of the excreta might prove efficient as a test, and that I should thus escape from employing a great quantity of decomposing matter. The pigeon had its crop one-third filled, and was therefore in full digestion. Owing to a mistake of my assistant, it was neither fed nor watered, and was found dead at the close of the third day. On carefully examining the tissues, I found no trace of the lesion which indicates poisoning, and as the canal was empty, I presume it died of want of food and water. I should add, that this bird had been used already for a former experiment, which had left it with a small slough in the left breast.

I rejected the intestinal fluids in the present case, and used only the excreta, which were unusually abundant, owing to a diarrhœa which had appeared during the last twenty-four hours of its life. These were dried at a gentle heat, powdered, placed on a filter, and treated with strong alcohol until most of the coloring matter was removed. The residue was again dried and powdered, and treated with water, carefully using the smallest amount possible. About two-thirds of this turbid, slightly green fluid, I injected immediately under the skin of a pigeon. It suffered less than usual from œdema and survived with the loss of a portion of skin separated from its subvascular connection by the large bulk of the injected fluids.

I repeated this mode of experimentation with fuller success, as shown by the following record :

Experiment.—Five grains of dry venom in two drachms of water, were placed in the stomach of a full grown pigeon, which was allowed to eat and drink as much as it desired, It was killed by pithing at the thirty-first hour. The contents of the canal and the excreta were dried, mixed together, and treated with alcohol. The remaining contents of the filter were again dried at a low heat, and finally mixed with water. This was again and again returned upon a filter, and at last used as a toxicological test. Care was taken to put the fluids immediately under the skin and not in the substance of the muscles. Three pigeons were used, and all three survived, with limited loss of skin over the injection.

My object in using alcohol in the latter experiments, was to coagulate as large an amount of albuminoid bodies as possible, and to wash away a portion of the coloring matters, chiefly bilious, which are so largely found in the dejecta of this bird. Venom, which like other albuminoids coagulates in presence of alcohol, is capable of being redissolved by water, and on this I depended for separating it to some extent, and securing its presence in a small amount of liquid.

There were certain objections to this method, which do not apply to that by which I sought to test the value of my former observations. I had long known that when fresh venom is mixed with water and boiled, a dense albuminous coagulum settles, leaving an opalescent fluid which alone is poisonous, and yields to strong

alcohol and to acids a second albuminoid, the toxic element of the venom. I used this knowledge as follows.

Experiment. Thirty grains of fresh venom were given as usual to a pigeon, which was killed at the fiftieth hour, and the excrements and intestinal fluids collected and mixed with distilled water. The whole mass was then boiled for six minutes and cast on a filter. The liquid which came through was divided into two portions, and injected as in other cases under the breast skin of two pigeons. Neither of them died, nor did they exhibit as marked signs of septicæmic poisoning as I had noted in some previous cases.

It appears from all we have seen, that the venom is incapable of absorption by the gastro-intestinal surfaces, and that moreover it is so altered during digestion (in birds) as either to enter the body in a harmless shape or to escape from the bowels in some equally innocuous form. For two reasons, therefore, the venom of serpents fails to injure animals which swallow it.

My next observations were intended to ascertain whether or not the venom had the power to pass through serous membranes.

In all of the following observations, fresh venom was used, a drop or two being placed directly upon the exposed membrane.

Experiment. Two drops of venom diluted with ten minims of water, were injected carefully into the left side of the pericardium of a young rabbit. Within an hour and a half, the animal was dead. On examination, I found about half an ounce of semi-fluid blood in the pericardial pouch. On washing it with

care, I could see no trace of venom poisoning around the track of the trocar wound. The lowest part of the sac was dark, from a subserous effusion of blood, but I could see no rupture of surface. From the circumstances of this experiment, I do not think that the venom acted through the wound, so that this poison must have been absorbed from the surface, beneath which I noted the effused blood.

Far more interesting, however, were the experiments upon the absorbent power of the peritoneum, because they became in a measure the means of my discovering the mode in which the venom influences the capillaries, and thus of answering to some extent the fourth of the questions which I proposed to myself for solution, when I began this inquiry.

Experiment. About one and a half drops of dried venom were dissolved in ten minims of water and carefully injected into the belly of a young pigeon. To effect this, I made an opening one-quarter of an inch long, and threw the poison into the abdomen so far as not to permit contact with the edges of the divided wall, which afterwards I held with forceps so as still to guard it. Death took place in fifteen minutes.

The intestines and gizzard were mottled largely with sub-serous hæmorrhage, and on touching the membrane it seemed that blood must also have appeared on its outer surface.

I was very much struck with this experiment, and proceeded to repeat it, using a rabbit.

Experiment. I carefully opened the peritoneum of a young rabbit, and after all oozing of blood had ceased,

I placed about a drop of venom on the mesentery, at the edge of the small intestine. In a minute and a half the gut contracted just where the poison touched it. Within the next minute I perceived minute red points, numerous scattered about the parts of the peritoneum covered by the poison. At the fifth minute many of these had coalesced, and in a moment later, the serous surface giving way, a free hæmorrhage took place. Death in fourteen minutes. In this case the peritoneum plainly gave way before the pressure of the hæmorrhage.

Experiment. After chloroforming a large gray rabbit, I laid open the belly, and drawing out a knuckle of intestine I spread it on a wet porcelain slab. I put then a mere dot of venom on the wall of the gut, and also a minute amount over the divergent vessels of the mesentery. In four minutes blood was oozing out between the two serous layers, and running along the sides of the vessels in the looser areolar spaces. Soon after, the clear interspaces, wetted by the venom, became dotted with blood, and as I lifted the gut gently for some purpose, the peritoneum gave way.

The venom which I had spread upon the intestine itself occasioned extravasations of blood, which, although at first subserous, soon found an exit through the membrane above them. The muscular movements of the part did not occur until the hæmorrhage began to be visible to the naked eye.

Exactly similar results were obtained by placing venom upon the peritoneal covering of the liver, spleen, or bladder in rabbits.

The membranes of the brain in pigeons gave a pas-

sage to the venom, although somewhat more slowly. The conjunctival mucous membrane interposed a perfect and absolute barrier to its absorption.

It would thus appear that while the venom does not osmose through the mucous membranes of animals, it passes with strange swiftness through the serous tissues in general.

Anxious to watch these phenomena at their earliest stage, I chloroformed a small rabbit with care, and aided by Drs. Keen and Loring, and Mr. Wilson, succeeded in arranging a loop of peritoneum in such a fashion as to enable me to study it with the microscope. No more brilliant view of the circulation can be had than this, which is very much superior to that obtained in the foot of the frog.

While I watched the vessels through the glass, Dr. Keen put a drop of venom on the field. At the close of a minute no change had occurred, then on a sudden I saw an eruption of blood-corpuscles from a vessel at its point of bifurcation. Almost on the instant a smaller number broke from a vessel at a remote part of the field, and soon these minute hæmorrhages becoming numerous obscured the view with their increasing outflow of corpuscles.

Before the rabbit died the same observation was made at another portion of its peritoneum.

It is needless to explain to the microscopist that I did not actually see the rent in these vessels which so plainly must have broken under my eye, the wound, minute enough in itself, being instantly hidden by the effluent blood.

The same observations, again and again repeated, offer-

ed no other facts than those which I have thus briefly related. In the frog, as I expected, the phenomena were so long in appearing as to interfere with the value of the experiment by reason of the drying of the part. At least an hour elapsed before I could obtain in this cold blooded creature the appearances which the rabbit furnished in a very few minutes.

I did not observe in any cases that the vessels were changed as to calibre, or that the circulation was checked or congested by the venom, no new vessels coming into view, so that whatever reddening venom may cause to appear to the eye, is to be set down to effusion of blood only, and not to congestion.

I made at this time a number of observations as to the effect of venom on the walls of large vessels, such as the femoral of a rabbit, but obtained no information of value, only negative results being evolved.

The phenomena which occur when the venom is placed on exposed muscular parts, appear more swiftly, but do not differ in kind from those caused by so treating the peritoneum.

A minute amount of venom was laid on the bare gluteus maximus of a chloroformed rabbit, and spread over about one-fourth of a square inch. Within twelve seconds there was a distinct alteration of tint over this space, and within one minute there were lines of blood oozing along the coarse muscular furrows of the part. All this time the muscle was twitching at and near to the spot covered with venom, and within ten minutes the hemorrhage was sufficient to cover, and to hide the muscle.

My next effort was to see whether or not the poison

would so obviously soften the minute vessels as to cause changes visible when the circulation had ceased.

For this purpose I treated many specimens of transparent tissues having their vessels either full or empty. Occasionally after long exposure, I conceived that there was some softening, but more often I was not confident of this, so that the attempt did not prove very satisfactory. I may add however that in my former inquiry I showed that the muscles when penetrated by venom undergo, after a time, a very distinct process of disintegrative softening. As to the minute blood vessels, and the peritoneum, there can be no ground for doubt, that the first effect of the venom is to occasion in some way an absolute impairment of the texture of the part, so that they no longer offer a normal resistance to force. The vessels thus altered give way under a circulatory pressure which, as I once showed, is lessening every moment, while the peritoneum is ready to yield to the effused blood or to tear at the slightest movement. Some of the inferences naturally arising out of the discovery I have just now stated, are of singular interest.

The enfeeblement and rapid rupture of capillaries explains at once the astonishing hæmorrhagic swellings which at one time I presumed to be due to the fang wound alone. Now, however, I know that wherever the least portion of diluted venom runs, it opens numberless wounds in innumerable vessels, wounds which the uncoagulating blood refuses to close, so that the resistance of the extra-vascular tissues would seem to be the only limit to the flow of blood. But what the pure venom effects in a minute or two, the absorbed venom does in

a less degree throughout the body, and only after a certain lapse of time. Thence arise effusions of blood which seriously affect the animal that survives the first shock of the poison, and constitute with an uncoagulable blood the chief symptoms of chronic poisoning by venom, as I have already described it in former essays.

The one form of poison which most resembles venom is that of putrefactive substances, and I am inclined to think that from putrefying material may yet be separated a substance which, concentrated, will prove active toxically, and will perhaps enable the observer to repeat the facts I have witnessed here.

While dealing thus briefly with the etiology of venom poisons, and trying to fill the lacunæ in my former papers, I ought not to pass over the subject of the blood changes, to which my attention has been lately drawn afresh. The *London Medical News and Gazette* refers to a paper by Prof. Halford on Cobra poison, in which he states the following theory: "Molecules of living germinal matter are thrown into the blood from the venom, and speedily grow into cells and multiply so that in a few hours millions are produced, I suppose at the expense, as far as I can at present see, of the oxygen absorbed in inspiration." Hence it seems arises asphyxia and death. Of course I cannot show absolutely that the venom of the cobra and that of the rattle-snake are alike in their mode of action. Since, however, those of the viper, rattle-snake and copper-head are certainly identical in the form of their toxic activity, and since the glands are also alike and simi-

larly placed in all venomous snakes, it is pretty sure that the cobra does not enjoy any peculiarities in its way of poisoning. With this slight preface I have only to add, that as regards the venom of the rattlesnake, it contains no germinal vesicles. Secondly, that as the blood of envenomed animals who live an hour or two becomes uncoagulable, all of the white corpuscles are allowed to collect in multitudes on top of the blood, and are the only bodies approaching the description which the Professor gives of his oxygen-feeding cells. Still, as he insists that what he saw were not white corpuscles, I can only say that no such cells as his are seen after crotalus poisoning. As in the case of the cobra, the victim's blood is fluid *if he survives long*, and the red corpuscles are unaltered, as I have seen, perhaps, a hundred times.

I have again and again witnessed animals die within two minutes, and once in a less time. A week ago, with my assistants, we saw a pigeon die within three minutes. If I be not mistaken, Russell records deaths from cobra venom in very short periods of time. Now what becomes of the growth of millions of cells within minutes of time! I should scarcely have dwelt so long upon this matter if it were not that this strange theory has been copied widely without comment in medical journals, and that I have been asked by many physicians if it were correct.

The sixth question which I proposed to answer concerns the power of serpent venom to destroy the snake itself. In my Smithsonian Essay I came to the conclusion that the poison is fatal to the animal which pro-

duces it ; but I stated my belief in a somewhat guarded manner, and have now to reverse entirely even the qualified decision such as I then expressed it.

Russell and Fontana both believed that the venom did not injure the snake itself, but both observers experimented by causing one snake to bite another, a defective method, because the dose thus given must always be of unknown amount. In other cases the serpent was made to bite himself, which for obvious reasons he is not apt to do quite so fiercely as if he were not his own executioner.

M. Bernard—" *Leçons sur les Effets des Substances Toxiques*," etc., 1857, p. 391—criticises Fontana's experiments on the viper somewhat unjustly, on the ground that observing the effect of venom on the pigeon and viper, and because the latter did not die so soon as the former, he concluded that it would not die at all, and therefore ceased to follow the observation long enough to secure a fatal result. A little care in reading Fontana's book might have spared the great French physiologist this erroneous statement.

M. Bernard himself relates one experiment, and alludes briefly to others. His method was to press the fang of a decapitated viper into the body of a second, and also to put a drop of exuded venom in a wound made for the purpose. The viper died on the third day. He adds that almost always the snake so treated perished within forty-eight hours.

My own results were similar, but the snakes used had been in my possession several months, during which time they had not fed at all, and moreover had been

subjected to very rough treatment in various ways, so that I suspect the traumatic injury inflicted while inserting the venom may have had its share in the fatal event. Guyon—"C. Rendus de l'Académie," t. liii, July, 1861, No. 12, p. 1—has asserted as the result of numerous experiments, that the serpent poison is innocuous to the serpent itself, and this with my own doubts caused me to repeat my observations in such a way as to satisfy me entirely.

I selected four rattle-snakes, all well and fresh and active, and, on the 17th July I threw into the back muscles of each of them ten minims of recent venom, the product of their own glands. The insertion was accomplished by the aid of a hypodermic syringe. The dose used was sufficient to have killed in each case about thirty or forty pigeons of the age of three or four months. The ruling temperature of the air was high, a condition unfavorable to the serpent, since an elevated temperature increases the ease with which cold-blooded animals are influenced by poisons.

Not the slightest evil resulted, and at this date, Oct. 3, the snakes are all alive and well.*

I believe that as concerns the rattle-snake, this observation may be looked upon as conclusive, and as

* As evidence of their continued health during the interval, I may state that they bathed as usual, and continued to form venom, which was taken from them at intervals.

Two of the four, to distinguish them from their fellows, were marked by having their rattles removed. Both of them have since produced new rattles. The larger snake formed two, the smaller one. They were not examined as to this point from July 17, 1867, to October 10, 1867, so that within these dates the new growth arose. Of course these facts dispose effectually of the popular belief that the snake makes but one rattle each year.

releasing me from pointing out further the defective conditions under which others, as well as myself, have labored, when failing to obtain a like result.

The final task which I had set for myself was that of examining the power of certain new remedies to control or antagonize the fatal effects of the venom.

It would seem to most men, and even to most medical men, an easy thing to say whether, when an animal has been poisoned, the use of a certain medication be of value or not. I myself have found it no light problem to solve, nor can I now refrain from wonder at the readiness with which physicians accept the slight testimony of single successful cases in man where all the conditions for accurate judgment are so much more hard to command.

As regards animals, it is first needed to know what is the minimum dose which will kill those of known and the same ages—for it is hardly fair to the remedy to experiment with doses of too great energy. Even when we have settled this primary question, we are often and curiously surprised at the escapes of some of the subjects employed. The puzzling factor of individuality perpetually comes into the equation with elements of doubt, so that it is only by multiplying results that we can reach the requisite amount of assurance that in a large given number of animals the individual cases of unusual resistance are not likely to interfere with our conclusions. We have seen already, that after long effort I was able to feel pretty sure that with pigeons between two and four months old the fourth of a drop was fatal.

The next difficulty arose in regard to the antidotes themselves. The sulphites are harmless enough, but I am sure I shall startle some of my brethren who are using carbolic acid so profusely, when I state that this agent is a poison so active in animals as to make it difficult to use it as an antidote without extreme risk to the life we seek to save. One drop of the pure acid rubbed on the breast of a pigeon may cause death, and two or three drops given internally, occasion in the rabbit terrible convulsions and a fatal result. Even half a drop used subdermally is dangerous to young pigeons, so that the utmost caution was required to insure that we did not make the remedy worse than the disease.

I have used these agents in two ways, first by mingling them with the venom and injecting the whole of the mixture. Should this answer to save life, the same means might somewhat less efficiently be used after a bite, since the antidote could be injected into the fang track, or after laying open the part could be employed as a wash.

The second method was meant to decide whether or not the remedy is a counteractive agent—that is to say, a true physiological antidote capable of opposing the toxic activity of the venom in the system by some opponent energy. For this purpose the supposed antidote may be given before or after the venom, or in both ways as may seem best.

The sulphites and hyposulphites appeared to me the most probable antidotes to venom poison. I briefly narrate the experiments which settled to my satisfaction their entire want of power to antagonize the venom.

In a first series of experiments I injected into the tissues of pigeons amounts of venom from half a drop to two and a half, mingled with half-drachm doses of sulphite or hyposulphites of soda or lime.

In no single case was there any lessening of the virulence of the venom—all alike perished. In a second series I used the venom first, and then gave at once internally ten grain doses of the sulphite of soda every five minutes, but, as before, I did not observe any favorable result.

The third set of experiments was conducted differently. I gave four pigeons thrice a day for three days, twelve grain doses of hyposulphite of soda, and then administered to each a half drop of venom, at the same time giving internally twenty grains of the salt. Like the others, all of these died in brief periods of time.

It was therefore plain that these agents were incapable of affecting the power of the venom by any method of employing them.

With remedies such as the sulphites, which are innocuous even in large quantities, the therapeutic problem becomes relatively an easy one; but far otherwise is it when we come to deal with a medicine like carbolic acid, which in small animals is itself capable of bringing about a fatal termination.

A long series of experiments was made with full doses of venom (one to three drops) to which I added varying amounts of carbolic acid—one to four drops diluted freely. Twelve birds were used, all of which died, for the most part, with the general quivering

which marks the influence of the acid. The local signs were considerably less than is usual.

Eight pigeons were each treated with a mixture of one-quarter drop of venom and half a drop of diluted acid. Six died with the symptoms of venom poisoning, one with those of the acid, and one lived. The local symptoms were slighter than is common.

Four pigeons received a mixture of one-quarter drop of venom and one-quarter drop of acid, the mixture being made in mass and with pure material—that is, to one drop of poison I added one of acid, and then diluted it, using in every case a fourth of the whole amount. Three survived and one died next day. Four pigeons were similarly treated with one-eighth of a grain of dried venom dissolved, and one-fourth drop of diluted acid. All died.

I should state here, and it is an important point, that in most of the above cases the poisoning, if as sure, was more slow than where venom alone has been employed, and that the ordinary local symptoms were decidedly diminished. At the same time it was only too evident, that in general the acid, especially if diluted, caused no well-marked amelioration of the general symptoms, the number of birds escaping death, even with small doses of venom, not being such as to give to the acid any decisive claim to antidotal value. But why was it that death was delayed, and that the local signs were less apparent than in unaided cases? and if these points were satisfactorily made out, might not the use of the acid turn the scales in a dubious case?

The antidote might act in one or more of three ways.

It might neutralize the poison. It might act on the tissues to retard absorption. It might pass into the circulation and have a true counteractive power.

The latter claim was settled negatively by a long series of experiments, in which I gave the acid internally, and then used the venom, in quarter or half drop doses. In many instances the birds perished from the effects of the acid, and in those which did not, owing to smaller doses, the venom killed promptly with the usual local signs.

I then took four drops of venom, diluted it with thirty drops of water, and added the acid drop by drop until I had used four minims and ceased to observe further coagulation. A slight excess of acid made the solution clear. The acid had here effected chemically all that was possible. I dried this mixture at a temperature of about 100° F., and adding a little water to the residue, which only in part re-dissolved, I injected it entire into the breast of a pigeon at 5 P. M. The pigeon was found dead the following morning. A repetition of this experiment gave a like result, so that I became reasonably sure that the acid did not permanently alter the noxious power of the poison.

As regards the remaining point, it was plain from inspection of the tissues that the acid, if at all strong, produced some shrivelling of the part, so that, considering its great power to coagulate albumen, it was probable enough that it might, by injuring the tissues, affect their ability to absorb, and even lessen the usual hæmorrhagic tendency. The problem became more clear when I placed the venom and acid together, or the lat-

ter alone, on the peritoneum of a rabbit, whilst I viewed the spot through the microscope. For, under these circumstances, all the local circulation was instantly arrested, the vessels remaining full of coagulated blood, and not breaking down, as usual, under the action of the venom. I have no doubt that here the safeguard would be absolutely effectual, because the venom and acid were limited to a given region ; but when injected together, they would be more or less free to permeate the tissues, and that, too, in all likelihood, at different rates of speed. Once the two agents reach the vessels, the apparent power to antagonize altogether ceases, and the venom is free to act. Precisely these results may be obtained, as I have elsewhere shown, by the use of iodine, advised by Brainerd, and of tannin, which is equally effectual, and, unlike carbolic acid, is innocuous in large doses.

Carbolic acid, then, lessens the local symptoms, and sometimes delays the fatal result when mixed with venom, because it interferes with the local circulation, and for no other reason. As to whether tinct. of iodine or tannin might be so used, in case of snake bite, as to be of value, I cannot say with certainty. There are some reasons why they might not act so well when injected after the venom as when mixed with it. Dr. Brainerd believed that iodine did save the lives of pigeons treated by secondary injection. I myself was less fortunate in the conclusion to which a repetition of his experiments led me. At all events tannin I found to be the more influential agent of the two, and I should employ it, if I made use of any local

treatment of this nature. At all events it could do no harm.

Neither carbolic acid nor the sulphites have been used in snake bites, but the former has been recommended by Lemaire as probably valuable for this purpose, and the latter have been so much lauded in connection with what we are at present pleased to call septic poisonings, as to have made it a duty to see how far they might prove of value in the present case.

I regret extremely that want of time has prevented me from examining more fully the remarkable alteration in the coagulating power of the blood in venom poisoning. In this, as in some other points, it approximates to certain diseases in which we possess so little practical chance of solving this problem, that I could not help hoping a clue at least might be found in the changes of the vital fluids in venom poisoning. That the blood like the capillaries undergoes some strange molecular alteration in presence of the venom, is most probable, but how far this alters the serum of that fluid is a question as yet unanswered.

The conclusions reached in the foregoing paper may be thus briefly stated :

One-fourth of a drop of venom is usually fatal to pigeons under the age of four months. One-eighth of a drop is frequently a fatal dose.

Rattle-snake venom is absolutely harmless when swallowed. Owing to two causes :

First, because it is incapable of passing through the mucous surfaces.

Second, because it undergoes some change during di-

gestion, which allows it to enter the blood as a harmless substance, or to escape from the canal in an equally innocent form.

Twenty-four hours after the venom has been swallowed, the dejecta of this period and the contents of the bowels contain no poison. The rectum (cloac) of the pigeon does not absorb the venom, and it causes no injury when placed on the conjunctiva of animals.

The venom passes through the membranes of the brain, and more swiftly through the peritoneum and the pericardium. When the venom passes through the peritoneum it so affects the walls of the capillaries as to allow of their rupture, and of the consequent escape of blood. The same phenomena appear on the bare surface of muscles thus poisoned. This influence, together with the defect of coagulability of the poisoned blood, accounts for the excessive hæmorrhage about the fang wounds. The blood globules are physically unaltered in venom poisoning.

The rattlesnake is not susceptible of being injured by the venom of its own species.

The sulphites or hyposulphites of soda or lime have no antidotal power.

Carbolic acid sometimes delays the fatal result, and usually lessens the local hæmorrhage.

These effects are due to no influence of the acid on the venom, but rather to a direct effect of the excess of acid upon the local circulation of the envenomed part.

Carbolic acid has no value as a true antidote, and when given internally does not affect the ordinary fatal issue.

ART. II.—*Tuberculosis of the Choroid.* By FRANCIS DELAFIELD, M.D., Asst. Curator of Bellevue Hospital.

DURING the present year, attention has been called by Dr. J. Cohnheim, of Berlin* to the occurrence of Tubercles in the Choroid. He has observed seven such cases, three others are described by Manz,† and one other by Busch ;‡ in all, eleven cases.

In all these cases, with one exception, there was acute miliary tuberculosis of the lungs and several other organs—liver, spleen, kidneys, &c. In one case, on the other hand, there were the lesions of chronic phthisis in the lungs, but grey miliary tubercles in some of the other organs.

There was no discrimination of age or sex ; the youngest case was a child six months old, the oldest a man 59 years old ; most of the cases, however, were in adults.

In all the cases but one both eyes were affected. The number of tubercular tumors in a single eye varied from one up to fifty-two. They varied in size from 0.4 mm. to 2.5 mm. The smaller masses were grey and transparent, the larger were opaque, yellow and cheesy at their centers, as is ordinarily the case with miliary tubercles. They were situated in the chorio-capillaris, and from that grew outwards into the choroidal stroma. Their anatomical elements were small, round cells, mostly with a single large nucleus, resembling the

* Virchow's Archiv., xxxix, 49.

† Arch. fur Ophthal., iv, 120, and ix, 133.

‡ Virchow's Archiv., xxxvi, 448.

cells of lymphatic glands, and more rarely larger cells, with two and three nuclei. Busch, in his case, also describes myélopaxes as present. Cohnheim thinks that the origin of the tubercles is to be found in a peculiar small, round cell, not unlike a pus cell, which is found in the normal choroid.

The first case of acute tuberculosis occurring at the Bellevue Dead House which has presented itself to my notice since reading Cohnheim's paper, has been found to present this lesion of the choroid. This case occurred in the service of Dr. McCready.

In this case, as in all the other cases recorded, there is no accurate account of the condition of vision, and no ophthalmoscopic examination was made, although in this, as in several of the other cases, the tubercular tumors were of such a size as must have necessarily interfered with vision, and rendered them visible with the ophthalmoscope. The history obtained concerning the patient was imperfect.

Hermann Manning, aged 34, native of Germany, admitted to Bellevue Hospital October 4, 1867.

He said that he had always been a hard drinker, and during the two weeks preceding his admission had been drinking even more than usual.

He was, at the time of admission, mildly delirious, with some fever, and was supposed to be in the first stages of delirium tremens. On October 10 his delirium became more violent, he gave symptoms of pneumonia, and died October 16, 1867.

Autopsy, October 18.

Body was somewhat emaciated, ecchymoses from contusions on the legs, body, and left eyelids.

The veins of the pia mater were congested, and there was rather more serum than usual under the arachnoid. Brain normal.

Larynx and trachea are normal.

The heart weighs eleven ounces; clots of mixed red and yellow fibrine in both ventricles; endocardium of right ventricle and pulmonary artery stained red; no valvular lesions.

There are old pleuritic adhesions over the greater part of both lungs. In all the lobes of both lungs are great numbers of grey and yellow miliary tubercles; no tubercular infiltration or cheesy pneumonia. Part of the lower lobe of the right lung is in the condition of red hepatization. The liver weighs four pounds two ounces, is of a light yellow color, and far advanced in fatty degeneration. The spleen weighs eight ounces; there are grey and yellow miliary tubercles under the capsule and in the substance of the organ.

The kidneys weigh together eleven ounces; in both are grey and yellow miliary tubercles situated in the pyramids and cortical substance. The Malpighian tufts are stained red by sol. of iodine. In the mucous membrane of the stomach and duodenum are numerous small, round ulcers, their edges sharply cut and undermined, also small white prominences here and there in the mucous membrane. The rest of the intestinal tract is normal.

Both eyes were removed and examined. No lesions were observed in any of their tissues, with the exception of the choroid.

In the choroid of the right eye are three small

tumors, one three mm. in diameter close to the nerve entrance, one smaller close to this, and one still smaller near the equator of the globe. In the left eye are seven similar little tumors scattered through the choroid.

The smaller of these tumors are grey and semi-transparent, the larger have white centres and gray edges, like ordinary miliary tubercles. They are situated on the outer side of and close to the basement membrane of the choroid in the chorio-capillaris, the larger ones extending outwards into the choroidal stroma. Over the larger ones the choroidal epithelium is destroyed; over the smaller it is intact.

These tumors are composed of—(1) Rounded finely granular cells, with a large nucleus, the cells .014 mm. in diameter. (2) In much greater numbers small, pale, round and oval nuclei, .007—.008 mm. in diameter, such as are usually found in grey granulations. (3) Fusiform cells. (4) In the centres of the larger tumors granular matter.

ART. III.—*Rupture of an Aneurism of the Ascending Aorta into the Pericardial Cavity.* By E. R. HUN, M.D., of Albany.

F. L——, æt 40. Born in France; cook at a restaurant. A stout, robust man. Had one or two slight attacks of rheumatism some ten or fifteen years ago. Was a high liver, and drank freely. Had not been sick during the past five years, except upon one occasion, when he had the gonorrhœa. Was seen April

16, 1867, by Dr. Mosher, who noticed that he looked pale, and did not seem to be enjoying his usual good health ; but he, at that time, made no complaints, and wanted no medicine. He worked as usual up to 12 o'clock on the night of May 2. After finishing his work that night he ate a very hearty supper.

The next morning, May 3, he complained of a dreadful pain, or rather distress, about the epigastrium. Dr. Mosher saw him at 11 A. M. The patient ascribed his distress to his late supper. He looked pale and anxious, had a dry, hacking cough, but denied having been subject to anything of the kind. Respiration labored. Cardiac sounds audible all over the thorax, behind as well as in front. When the ear was applied to the pericardial region a labored, strong and heaving but regular action of the heart was observed. He having previously suffered from rheumatism, the doctor attributed his present trouble to rheumatic pericarditis. The patient stood most of the time, but upon being requested to sit down did so, leaning his head forward upon his hands. Soon after he arose and walked about the room, seeming to be in great distress and unable to lie down. His face was bathed in perspiration and very pale. He made several unsuccessful attempts to vomit. About 3 P. M. he placed both hands upon the top of a bureau, and leaning his head upon them, suddenly fell to the floor, and died almost immediately.

Autopsy, 24 hours after death.

The pericardium was distended by a quart of blood contained in its cavity. Just above the aortic valves, near the orifices of the coronary arteries, were two open-

ings leading into aneurismal sacs, the larger one capable of containing an ounce and a half and the smaller one about half an ounce of fluid. The sacs were contained in the pericardial cavity, and the blood found in this cavity had escaped through a rupture of the larger sac. The laceration was ragged, and large enough to admit the passage of two fingers. The walls were much thinner about the point of rupture than elsewhere. There was no appearance of any coagula in the aneurisms. The opening of the larger aneurism into the aorta measured about one inch in diameter, and that of the smaller one about half an inch. A few atheromatous patches were found along the ascending aorta. The heart was hypertrophied, and accumulations of fat were observed upon its external surface. The muscular tissue of the heart was paler than usual, and when examined under the microscope oil globules were found between the muscular fibres, but the fibres themselves had undergone no alteration. The valves were healthy, but the mitral orifice was enlarged to such an extent that the valve was insufficient to close it completely. The lungs were healthy. The sternal cartilages were ossified. The abdominal viscera appeared healthy, but a microscopic examination showed that both the liver and kidneys had undergone a fatty degeneration.

ART. IV.—*Tuberculous Disease in North-Western Texas.*

By EDWARD MALCOLM MORSE, M.D., Børne, Kendall County, Texas.

AMONG the many diseases which try the patience and

call into play all the skill of the physician, phthisis pulmonalis is certainly not the least.

It is not my intention to enter into a dissertation on this malady. I only propose to give to the profession and public a few practical and, I hope, valuable facts in relation to the advantages of the climate of North-Western Texas in cases of this disease. I hope the few facts which I shall state may be as acceptable to some of my *confrères* as they are likely to prove beneficial to those among their patients who may act on them. In enumerating the causes of phthisis, Dr. Wood, in his "Practice of Medicine," after placing inheritance at the head of the list, says that "next, perhaps, in the degree of influence is cold." Dr. Edwin Lee, of London, in his prize essay on the "Effects of Climate on Tuberculous Disease," makes a very good practical distinction, in my opinion. His first sentences on the causes of this disease are true, and, like all he writes in his valuable essay, to the point. He says (more correctly than Dr. Wood): "*Foremost* in the rank of predisposing causes of tubercular cachexy must be placed the action of humidity, especially of a cold and humid atmosphere, upon the system; and, consequently, consumption prevails most frequently in countries where this state of the atmosphere prevails most during the winter months, as in Great Britain and Ireland, a great part of France and Germany, and especially in Holland. It is likewise extremely prevalent among the natives of hot and moist climates, as in the islands of the West Indies, from the debilitating and relaxing effects of the atmosphere. On the other hand, phthisis

is *comparatively* infrequent in countries where the climate is cold and dry, as in Sweden, Norway, Canada, and a great part of Russia." Mr. Philips remarks in his work on scrofula: "Inhabitants of cold countries are not particularly liable to be affected by the external forms of tubercular disease. They are very rarely seen in Iceland or Greenland, or at Spitzbergen."

Now if any place has a dry and bracing climate it is this portion of Texas—Kendall County, together with the adjoining eastern, western, and northern counties. From the Gulf of Mexico to this point the country consists of rolling, dry prairies and unwatered "post oak lands" (as they are called). North of this the same dryness of soil, varied with mountain lands and sandy deserts, extends for hundreds of miles. There are no low marsh or low moist lands from which the atmosphere can be impregnated with humidity. The little brooks and so-called rivers are insignificant mountain streams, running for the most part briskly over shallow pebbly beds, and the confining banks are too dry and thirsty to let their waters spread out into swamps, from which the air can be charged with moisture. Among the favorite resorts in this section of the country the little village of Boerne (pronounced Boërney) is one of the most attractive and picturesque. Sequin, Comfort, Sisterdale and Fredericksburg have each its admirers, and are all quiet, orderly little towns, chiefly inhabited by Germans. I have met with numbers of the old settlers, who have informed me that when they came here they were suffering from consumption, but who are now well, having no symptom of that disease. All

whom I have met with here, (and I find representatives of nearly all the States and from several countries in Europe,) improve wonderfully in weight and health, if they have taken proper care of themselves and adopted habits of regular exercise. The only exceptions to this statement are a few cases in which the disease was very far advanced before they reached here. Patients who are strong enough can amuse themselves hunting deer, wild turkeys, and partridges, with which this region abounds, and occasionally in fishing, some of these small streams abounding in trout. The City of San Antonio, distant some thirty miles south of Børne, is too hot in summer for pulmonary invalids. This little mountain town is several hundred feet higher above the level of the sea than the City of San Antonio. We have severe northerners here occasionally, but they are dry, and as the town is situated on the southern declivity, it is well protected, and invalids do not suffer any deleterious effects from them. Persons suffering with decided symptoms of phthisis should come to live in this climate and make it their home. For the benefit of those whose means may be limited, I will state that the fare for first-class passengers from New Orleans to San Antonio is fifty-three dollars in currency; this does not include hotel and porters' bills on the way. It takes two days from Indianola to San Antonio and two nights. By way of Galveston, Houston and Aleyton the time is something less. Hotels here in Børne charge thirty dollars a month in specie; but a person coming here to reside six months or a year can live a great deal cheaper by

renting a small house or a room in the village. I doubt very much whether Upper Egypt, Malta, Naples, Nice, Rome or Madeira, so famous for the beneficial effects of their climates on this disease, can surpass the dryness of atmosphere, the beauty of the wild flower-covered prairies, and the invigorating mountain breezes of this portion of North-Western Texas ; certainly no other part of the United States can for a moment be compared with it in its happy influence on phthisis pulmonalis.

ART V.—*Powdered Alum : Marked Success from its Accidental Use in a case of Extensive Burn.* By WILLIAM MASON TURNER, B. Ph., M. D. Philadelphia.

THINKING the report of the following very severe case of burn which came under my observation several years ago, especially in so much as relates to the final, simple, successful, therapeutic means employed, might be interesting to some of the profession, I am induced to publish it.

On a dark night in February, 1860, I was sent for by J. M., who, the lad told me, was suffering from a "monstrous, terrible burn." On reaching the bed-side of the patient I found, indeed, a terrible burn. The history of the case revealed the following: Just one week previous to the date at which I was called, M., (who on the morning of the day he was burned, was discharged from my list as well, having been stabbed in the right breast,) in a state of beastly intoxication, endeavored to walk across the floor in a drinking sa-

loon. In the attempt he fell over a stove and upset upon himself about two gallons of boiling coffee. The steaming liquid saturated his pantaloons, a heavy, stout woolen pair, and coursed over him from the sacrum, over the right gluteal region, on to the abdomen, to the region of Poupart's ligament, down to the external abdominal ring. The exterior portion of the thigh and hip was burned for the length of fifteen inches, with an average breadth of eight and a half inches. The left thigh was burned, commencing under the scrotum, and including its entire anterior surface, reaching in greatest length to the external portion of the patella, and ranging in breadth from four to nine inches. The anus was partially involved, and there was some danger of cicatrix and consequent closure of that organ. A more foul and offensive wound I have never seen. The odor was almost unbearable. The man was quivering with pain, wore an anxious look, and had a small, thready, irritable pulse. He assured me he had not slept since the accident—eight nights! He had, fortunately (for himself) survived the shock, which owing to his inebriated condition, was not serious to the general system. So drunk, in fact, was the man, that the mad excitement induced by liquor buoyed his spirits above the pain resulting from the severe wound, and under this influence, he had walked alone to his house, a distance of half a mile or more. His repentant feelings and shame at having so soon to call me in again, (his stab was received in a drunken brawl,) prevented him from sending for me until, having tested the virtue of several domestic remedies, and finding

himself getting no better, his fears overcame his scruples, and I was called just one week after the occurrence.

On taking down the coverlet to examine the wound, a perfect cohort of *odeurs mauvaises* rushed against me, and if the truth be told, despite some hospital experience at home and abroad, I came near succumbing to the attack. The entire surface of both wounds was covered with a thick hard crust, which, upon inquiry, turned out to be a mixture of flour, resin and soot. The edges of the raw wound, alone visible, presented very foul, pale, sickly granulations in great exuberance, while the entire periphery of the burn showed a purplish erysipelatous appearance, which did not improve the ground for a favorable prognosis. Everything was against the poor man; he was in the most abject circumstances, his conveniences were none, his food was nothing more substantial than corn meal, his nervous system shattered, and his vital forces fast ebbing away. Under the circumstances, I supplied him with suitable food and ordered him a bark tonic and an evening sleeping draught, and table spoonful of whiskey if there were any signs of sudden prostration; also the following local applications: light bread poultices to the hard crusts, to favor their removal, and strips of linen (cut to fit the naked granulous periphery of the wound) wrung out in carron oil, to be renewed *ter in die*, the last application to be followed by linen strips spread very lightly with Kentish ointment. The constitutional tonic treatment and the exhibition of the opiate every night was continued, the latter being

varied with opium, hyoscyamus, lactucarium, &c. The poultices and different linen strips were also continued. At the end of the week, the poultices, aided by a few touches with the knife, had the good effect to bring away the ugly crusts, and then the entire repulsive, flabby, granulating offensive surface was exposed. The edges of the wound, in the mean time, had shown no signs of taking on a healthier action, and the erysipelatous blush was spreading. The wound was suppurating profusely, and this, connected with the debilitated state of the system, gave some fear of pyæmia. As the ugly sloughs came away, at least a handful of decayed muscular structure, in a *cooked* condition, was wiped away with the sponge. The process of dressing the wound gave intense pain to the sufferer, and I was compelled to administer whiskey, my only diffusible stimulant, freely and frequently. I applied linen rags wrung out in carron oil three times a day, covering the whole with light oil silk to prevent all possible contact with the air; the last application to be followed by Kentish ointment. I continued this treatment for several days, during which time I was compelled to plug the anus with a piece of charpie saturated with ol. oliv.

At the end of five or six days, there were no signs of improvement. Thinking the case was rendered worse by frequency of dressing, I ordered the saturated rags to remain for a longer time, but pus was secreted so rapidly that it became absolutely necessary to change the strips. Finding no good result follow this local treatment, I next tried the solution of potass. perman-

ganas, then especially esteemed by English surgeons. It rendered the wound perfectly sweet, but beyond this no good result followed. The burn showed no sign of increased healthy action, but obstinately continued in *statu quo*, while the man was steadily sinking. I endeavored to touch the edges with the solid nitrate of silver, but on its slightest application the patient swooned; and at the mere mention of caustic afterward he showed not only signs of fainting but symptoms akin to convulsions. Of course, this, the best topical application, was useless. I next endeavored to improve the patient's general system by the addition of a ferruginous tonic, and commenced dusting the wound with powdered calamine (zinci carb. nativ.), with an external dressing of simple cerate. Under this treatment there were some indications of improvement, but the symptoms were illusory; the granulations disappeared in a measure; but a day or so afterward, as the patient attempted to move himself in bed, a severe hæmorrhage occurred from both wounds and still further weakened him. Yet enjoining on him perfect rest, I continued the calamine dust and simple cerate application. A fair trial, however, determined its inefficiency. Next Goulard's cerate was tried, and the wounds strapped with emplastr. adhes., and yet no satisfactory result. In the meantime several other hæmorrhages from the inner face of the thigh had taken place, exhausting the patient fearfully. I did not examine particularly the spot from which the bleeding had taken place. One day I was dressing the wound, and requested him to move his body if possible, so as

to bring the burn into a more favorable position. He made quite a violent exertion, and as he did, a jet of dark blood burst from one single point on the inner face of the left thigh. I had no styptic at hand. I tried cold water and pressure, but without success. On inquiring, I learned there was some *burnt alum* in the house. This I powdered fine, and applied to the bleeding surface, and had the satisfaction of stanching the hæmorrhage in a few moments. On examining the bleeding place, I found a soft, fluctuating tubercle, bluish in appearance, about the size of a pea. It protruded from beneath the internal edge of the quadriceps femoris muscle. The wound was of such a depth, that I thought and feared at one time that the hæmorrhage came from the internal saphenous vein, and that the tubercle was the vein itself. After having checked the hæmorrhage, I applied a compress, and bound it *in situ* with adhesive strips. Before closing the dressing, and merely to see what effect it might have, I dusted the edges for about an inch throughout the entire periphery of the wound, with the alum, and covering it with the usual dressing, left. What was my surprise next day, to see the portion over which the alum had been sprinkled, wearing an altogether different appearance, the foul granulations cut away, and the wound evidently disposed to heal. Fearing from the *commonness* of the remedy that the man would not be favorably impressed with this trifling treatment, as he would and did designate it, I brought with me the next day powdered alum, duly labeled, etc. The power of mind over matter is wonderful; it makes, when properly used, a mighty ad-

junct to success in our profession. I commenced, then, a regular *alum treatment*, and from that moment had no more trouble; the man slept so well that anodynes were intermitted. The tonic treatment created an appetite, and nourishing food generated the necessary life-giving blood. The wounds healed with an astonishing rapidity, and what is more inexplicable and more fortunate, they left behind no drawing cicatrix. When the man was discharged he was in better health than he had been for years, and walked without limping.

I ascribe the successful termination *entirely to the accidental employment of alum*; and because this is almost everywhere a domestic remedy, I have concluded to call attention to it. From this one case of successful exhibition, I think it in cases similar to the above well worth a trial.

ART. VI.—*Wounds of the Ends of the Fingers. Treatment by Splints.* By IRETUS G. CARDNER, M. D., New York.

HAVING at one time many wounds of the fingers in girls employed in a paper-collar manufactory, it gave an opportunity of making such wounds a special study.

The injuries were received while attending the embossing or stamping machines, and never involved more than the distal phalanx, and were always contused. Sometimes the flesh and nail were jammed off, leaving the phalanx uninjured; but more frequently the tip-end of the phalanx was crumbled off, leaving a part of it projecting, and uncovered by the soft tissues. From the

nature of the machines, the soft parts were uninjured up to the very point of contact with the die. One's first thought upon seeing a perfectly naked phalanx—full one-half to three-fourths of an inch in length—is to nip it off, close to healthy flesh. But the timidity of the patients, and the fact that in some of the first cases a part of the phalanx was also gone, caused me to adopt a different course.

The object in view was to keep the surface of the phalanx constantly wet, and so dressed as to have nothing press closely against it, and to have the lotions so simple as to leave no sediment or resinous substance upon it; thus giving the freest scope to granulations, and to the growth of the skin. To secure this condition at first an anterior and a posterior splint was applied, extending an inch or so beyond the end of the phalanx. But on finding, as the granulations occurred, a flattened finger produced, I then used three splints; but obtaining a triangular finger, the plan of using four leather splints was uniformly adopted. The lotion consisted of a weak decoction of rum, opium, and cort. hamamelis Virginianæ, with a little liq. sod.-chlor. added when indicated. After applying the splints they were firmly bandaged from above downward, a piece of lint wet with the lotion was inserted between the projecting ends of the splints, but not upon the phalanx; the whole hand was bandaged and kept wet with water. The lotion could be applied through the ends of the splints, which, therefore, were not removed until the finger was nearly well. Twice or three times a week, having unbandaged the ends of the splints, they could

be turned back to inspect and cleanse the wound. The lotion was thought peculiarly adapted to contused wounds, and especially to favor healthy granulations.

The granulations sprung up slowly from the periosteum, if it was kept properly wet, but pushed forward faster from the free margin. In about ten days the bone would be completely covered, the finger of full size, and of any shape to which it might be moulded by the splint.

At this time, a complete outline of the nail—the nail *bed* in the corium—could be distinguished; but it, with the rest of the newly-formed finger, would be so tender that the slightest touch of the probe would cause bleeding. The early formation of the nail bed is evidence of the early development of the corium. The epithelium, or nail itself, was more slowly developed upon its bed, and great care was necessary to prevent deformity; therefore, at this stage the real difficulty began. Having, then, newly-formed tissue, easily disturbed and destroyed, covered only by highly-sensitive corium, it required great patience to await the protecting growth of the nail and the epidermis.

The epidermis was more actively developed upon the corium along the border of the wound, giving it the appearance of growing up from the margin. By care on the part of the patient, the result was a perfect finger, if the phalanx was uninjured, with a well-formed nail, in from three to four weeks. The lotion and splints were continued until the epithelium had grown up to the end of the finger, when the remaining wound would be allowed to cicatrize, and applications of tinct. iod. be made.

In the case of Mary Finly, Jan. 18, 1865, who had remarkably long fingers, the whole third phalanx of the second finger was exposed. The soft parts were torn from off the phalanx, exposing the insertion of the *extensor communis digitorum* muscle, and hung by the palmar tissue at the base of the phalanx. The soft parts were amputated, so as to leave a palmar flap uninjured, extending half-way up the phalanx. This flap was trimmed, applied to the phalanx, and dressed in the manner above described. A perfect finger was the result.

When Attending Physician to the New York Dispensary, a patient applied to me to amputate his finger. The third phalanx, uninjured, was perfectly naked. It required great assurance to convince him that amputation was unnecessary, and that a perfect finger, with a good nail, would be produced. The splints were applied, but at the end of a week the fœtor and pain were so great, that the patient was still more doubtful. Examination revealing healthy granulations, he was urged to persevere for another week. The patient was still doubtful; but when a second examination exhibited a finger of full size, and, over the granulations, the delicate tracings of a perfectly-formed nail, his surprise was amusing. The result was very satisfactory.

Cases might be multiplied; but these two are types, and sufficiently illustrate the treatment adopted. One thing was observed. In cases where the end of the phalanx was crumbled off, the finger was not much shortened. For there seems to be a tendency to pad out the end of the finger with fibrous tissue attached to the phalanx, so that with a nail of proper length, there is little deformity.

Reviews and Bibliographical Notices.

ART. I.—*Egypt and the Nile considered as a Winter Resort for Pulmonary and other Invalids.* By JOHN PATTERSON, M.D., L.R.C.S., Egyptian Medical Service. London. John Churchill & Sons. 1867. 12mo. pp. 84.

WHAT shall we do with our invalids suffering from chronic pulmonary diseases is oftentimes a perplexing question for the physician to answer. Drugs frequently are found largely ineffective; and naturally, too frequently unintelligently, we resort to a change of climate. But just now we observe a special activity in the attempt to solve this question, and competent observers are recording their experiences for the benefit of others,* and there need be but little excuse now in consigning a patient to a residence under climatic conditions unsuitable to his case. Dr. Patterson's little book is the result of careful and continued observation, and his discrimination of the classes of cases suited to an Egyptian climate is well made and explicit, and the meteorological tables included in the book afford us a means of estimating for ourselves the influences of the climate. Altogether, this little book is a valuable contribution to our knowledge of a specially important question, and is doubly valuable by reason of the sound sense pervading the whole, and the advice laid down regarding the use of drugs, and the proper mode of life for the invalid who visits these countries. The following bit of advice, with which Dr. P. closes his book, may not be out of place for latitudes not quite so far distant as Egypt and the Nile:

* In this connection the reader is referred to the following recent publications, in addition to those mentioned in our "Summary," page 264, last number. "The Climate of the South of France." By Dr. C. T. Williams. London: John Churchill & Sons, 1867. "On the Influence of the Alpine Climate on Pulmonary Consumption." By H. Weber, M.D. *British Medical Journal*, Aug. 24, 1867. "The Climate and Diseases of Central Texas." By R. H. Chinn, M.D., *New Orleans Medical & Surgical Journal*, Nov. 1867. See also paper by Dr. Edward Malcolm Moore in the present number of this journal.

“Curtail the usual list of medicines, more especially the stronger purgatives; many invalids partly nullify the good effect of a change of climate by continually dosing themselves with physic, and keeping their organs in a continual state of irritation.”

ART. II.—*On Hay-Asthma, and the Affection termed Hay-Fever.* By WILLIAM PIRRIE, M.D. London. John Churchill & Sons. 1867. 12mo. pp. 95.

DR. PIRRIE'S modest little treatise is an attempt to elucidate the pathology of that obscure but distressing catarrhal affection, met with only in the summer season, and which is designated variously as hay-asthma, hay-fever, rose-fever, rose-cold, summer-catarrh, etc. He recognizes two distinct varieties, each presenting its peculiar train of symptoms, and each having a special pathology. The first is a purely spasmodic affection—essentially a genuine asthmatic seizure—and depending upon peripheral nervous irritation, the source of which is generally readily traceable to the emanations from various grasses and flowers, and to vegetable odors. To this class Dr. P. restricts the term “hay-asthma.” The other variety is not spasmodic, and has for its essence “relaxation and febrile irritation from exhaustion or impaired activity of certain centres of the cerebro-spinal and sympathetic nervous system,” and the principal element at work in the causation of this affection, Dr. P. considers to be the summer heat, acting upon constitutions of a naturally sluggish circulation, and with a tendency to disorders of the biliary and renal secretions, with diminished or unhealthy perspiration. For this tedious affection, prolonged, unchanged by change of location, uninfluenced, as a rule, by treatment during the attack, and characterized by the fluctuating catarrhal and febrile symptoms, so well known, Dr. P. suggests the name “summer catarrhal fever.” This view of the pathogeny of these two affections, usually and popularly

described as one disease, is a decided advance in our knowledge, and explains contradictions regarding the manner and place of attack, and the effects of treatment, etc., that were hitherto quite perplexing. The author sustains his view by the recognized influences of the imponderable stimuli light and heat upon the nervous system, and by well-drawn analogies from other diseases.

But whatever we may think of his pathology (and for ourselves we are certainly inclined to adopt it), his description of the disease will be found most admirable and exact, the best in the language, and not a mere reflex of other men's ideas, but based on his own experience. In the matter of therapeutics, Dr. P. adds but little to our existing knowledge of the subject; yet his whole plan of treatment is based upon incontrovertible grounds, and is marked all through by sound advice that cannot fail, if thoroughly carried out, to be of good service.

ART. III.—*Headaches; their Causes and their Cure.* By HENRY G. WRIGHT, M.D., M.R.C.S.L., &c., &c. From the fourth London Edition. Philadelphia: Lindsay & Blakiston. 1867. 12mo., pp. 154.

DR. WRIGHT's little book, with no pretension of being an exhaustive essay on the subject of which he writes, describes the varieties of headaches most commonly met with in ordinary practice. He divides headaches into three classes—those of Childhood and Youth, Adult Life, and Old Age; and lays stress upon the fact, that as at the two extremes of life, headaches are more rare, so they are more significant, and demand more careful and prompt attention. In adult life he further subdivides the class into the varieties: dependent, 1st, on the circulatory system; 2d, on the digestive organs; 3d, on the nervous system; 4th, on the gouty or rheumatic diathesis; and, lastly, on organic diseases of the brain, or its membranes. Each of these

varieties are described clearly and succinctly ; the causes of each are fully pointed out ; and the treatment, both prophylactic and remedial, given at considerable length and with much discretion. The book will prove especially serviceable by its practical character and adaptability to the wants of every-day practice ; and a reference to its pages will induce a habit of discriminating carefully the causes of this distressing complaint, and thus lead to more intelligent ideas of its pathology and therapeutics. The appended formulæ which Dr. W. has found serviceable in the treatment of numerous cases, although squinting a little toward polypharmacy and verging at times on the heroic in quantity, contain some most admirable combinations, and can readily be altered to suit the requirements of individual cases.

ART. IV.—*A Practical Treatise on Shock after Surgical Operations and Injuries, with especial reference to Shock caused by Railway Accidents.* By EDWIN MORRIS, M.D., F.R.C.S., &c. Philadelphia: J. B. Lippincott & Co. 1868. 12mo., pp. 98.

DR. MORRIS'S monograph adds little or nothing to our existing knowledge concerning the so-called "shock" after injuries and surgical operations ; a condition generally much easier to appreciate and understand than to define, and Dr. Morris's attempt to make such a definition is not particularly happy. The especial novelty of his little book is the strong ground he takes in opposition to the custom of instituting suits against railway companies, by everybody who happens to be jostled up in a train that has come to grief, and the practice of simulating injuries of the nervous system with a view of securing damages. This gives him an opportunity to "let fly" at Mr. Erichsen, whose views, recently put forth in his little book named most inappropriately "Railway Injuries," he claims have resulted in much mischief. Dr. Morris's remarks on the relation of

railway corporations to their patrons, injured by the accidents of travel, are better adapted to an English latitude than to our own, for the double reason that in Great Britain some care and precaution is manifested in guarding the lives of passengers on railways, an imputation of prudence that, we believe, has never been charged against any American company; and, secondly, the custom so prevalent abroad of demanding damages for even the slightest injuries, does not obtain to the same extent in this country. The figures in which the leading railways of Great Britain are mulcted for damages in a single year will probably surprise the most of readers, and might possibly have a salutary effect, if they could be brought to the attention of the directors of our railways. For instance, in 1865 the "Great Western" paid upwards of \$200,000; the "London and North-Western," upwards of \$150,000; the "South-Eastern," upwards of \$350,000; the "Great Eastern," "Great Northern," "Midland," "London and South-Western," and "Lincolnshire and Yorkshire" Companies, respectively, upwards of \$100,000.

Although written with a decided bias in favor of the corporation and against the individual, many of his paragraphs are replete with sound sense, and are of practical value; and his description of the symptoms and treatment is well drawn and judicious.

ART. V.—*Epidemic Meningitis or Cerebro-Spinal Meningitis*. By ALFRED STILLE, M.D., Professor of Theory and Practice and of Clinical Medicine in the University of Pennsylvania, etc., etc. Philadelphia: Lindsay & Blakiston, 1867. 8vo., pp. 178.

WITH characteristic industry and accuracy, Dr. Stillé here presents us the results of his studies and observations on this disease, which has so largely prevailed in many sections of our country and Europe for the past few years. His opportunities for observation were

large, as about one hundred and twenty cases occurred in the Philadelphia Hospital during the first quarter of the present year. During the corresponding period of the previous year, a still more extensive and fatal epidemic of typhus fever was witnessed in the same institution, and in this way Dr. S. had a most admirable occasion for comparing the two diseases and showing the grounds of the common error of confounding them, an error which, unhappily, has led to much perplexity and doubt in the published cases of both these diseases, and has originated many honest though mistaken differences of opinion.

Beginning with a history of the various outbreaks of the disease that have occurred during the present century—for to go further back is to enter a field of obscurity and entire unreliability—Dr. S. shows that the two conditions of simultaneous appearance in widely remote places, and of annual recurrence for a series of years, varying from ten to fifteen, remove this disease from the category of ordinary endemics, or even epidemics, and entitled it to the appellation of *pandemic*. No other disease fulfills these two conditions, and none other but influenza answers even to the first. Three such epidemics are recorded during this period. "The first, of eleven years, began in 1805, and terminated in 1816; the second, of thirteen years, occurred between 1837 and 1850, and the third extends from 1856 to the present time," and it may, therefore, be fairly assumed that this outbreak is about approaching the termination of its career; and the present is a peculiarly fitting occasion for reviewing its course, manifestations, and the modes of treatment which experience has shown to be serviceable.

Dr. S. then gives a general outline of the disease and a sketch of its symptoms, laying especial emphasis upon the fact that "no single typical case nor any general description, can accurately represent this protean disease as a whole, nor convey a just idea of its numerous grades and multiform aspects." Next he enters into

a detailed examination of the special symptoms furnished by the several organs and systems of the body. A narration of the duration, convalescence, sequelæ and mortality of the disease, then brings him to a consideration of its pathogeny, etiology, diagnosis and prognosis. In all this, while there is but little advanced that is really new, the whole is laid down with remarkable conciseness and clearness, and we see exhibited an extraordinary research and study, and a most judicious skill in the collation of his numerous authorities and in their comparison with his own observations.

In the matter of diagnosis the distinctions are so clearly drawn, that to longer perpetuate the error which we have already alluded to is wholly inexcusable. As regards the nature of the disease, Dr. Stillé's views are in accord with the judgment of the observers who have most thoroughly investigated the subject, and which assigns to it the double element of a general blood poison and a local meningeal inflammation. This dual nature has been the cause of much of the confusion respecting its name, description, etc., for as the one or the other element predominates, the case will assume more of a typhoid or inflammatory type.

A by no means unimportant consideration is the name of the disease. The term "spotted fever" by which it was first described, is manifestly erroneous, for spots are neither peculiar to nor constant in the disease. "Petechial fever" is still worse, for the spots when present are more frequently purpurous than petechial. The best term is unquestionably that by which Dr. Stillé describes it, and which is now generally accepted by most writers, although our Dublin friends have only recently been largely exercising their etymological ingenuity in the attempt to devise something better.*

Of Dr. Stillé's description of the line of treatment to be pursued in this grave disease, we have little need

* See the JOURNAL for September, page 534. The opinion we there expressed as to the nature of this epidemic we are glad to see sustained by Dr. Stillé.

to speak. While giving the experience of other observers, he states his own opinions with decision, and his estimate of special remedies or lines of treatment is based not only upon his thorough insight into the nature of the disease, but upon his own careful clinical observations. A very full bibliographical list of the authorities quoted, is appended to the volume, thus adding materially to its value for the purposes of reference, while for the more complete bibliography of European treatises the reader is directed to the appropriate sources. Altogether we have rarely read a monograph with greater satisfaction than this, and we most cordially commend it to our patrons as a thorough digest of everything worth knowing concerning cerebro-spinal meningitis.

ART. VI.—*Extra-Uterine Fætation and Gestation and the early Signs which characterize it; Symptoms of the fatal Hæmorrhage into the Peritoneal Cavity; its Usual Termination; Suggestions for the Positive Diagnosis of this fatal condition, and a Plea for the Treatment indicated in it, with a view of saving the Life of the Woman.* By STEPHEN ROGERS, M.D. Reprint from the Transactions of the American Medical Association: Philadelphia. 8vo., pp. 64.

THE purport of Dr. Rogers's little brochure is sufficiently evident from the above somewhat extended title of the same. His plea is in favor of opening the peritoneal cavity and ligating the bleeding vessels, so soon as the diagnosis of rupture of the fœtal cyst is certain. And this diagnosis he would make certain by an exploration with a trochar and canula, although he claims that there is little room for doubt in any case, and that certain signs may be regarded as pathognomonic of the condition of extra-uterine fætation. Theoretically we can see no more objection to his proposed procedure than was brought against the operation of

ovariotomy in its infancy, and his labored defence of his plan of treatment is quite useless, besides being occasionally weakened by his betrayal into a loss of temper at what he deems the intolerant opinions of others. Practically we have to await a demonstration of the feasibility of the operation, and we must aim by minutely recording all such cases to arrive at more positive grounds in diagnosis, for the accident is so rare that but very few practitioners meet with it; and when this is once firmly established, it appears to us entirely justifiable to make the operative interference, as the cases left to themselves almost invariably prove fatal. One very decided imperfection in Dr. R.'s paper is his neglect to make his references to the authorities whom he quotes so liberally. Another person in going over this subject again would find that this paper had saved him but little labor and would be of but little service beyond suggesting the line of inquiry to be pursued.

ART. VII.—*The Physiology and Pathology of the Mind.*

By HENRY MAUDSLEY, M.D., London, Physician to the West London Hospital, etc., etc. New York: D. Appleton & Co. 1867. 8vo., pp. xv, 442.

DR. MAUDSLEY'S aim in the preparation of this volume, has been to treat of mental phenomena from a physiological rather than, as has hitherto been the habit, from a metaphysical point of view, and to bring to bear upon the interpretation of the obscure problems of mental science the manifold instructive lessons deducible from the study of the unsound mind. With this purpose in view he divides his book, as its title implies, into two parts, each complete in itself, but so intimately related in reference to plan, that the full appreciation of the latter portion, devoted to the "Pathology of the Mind," or insanity in all its aspects of cause, variety, etc., can only be had by an understanding of the former.

The opening chapter of the first part, on "*The Study of Mind*," is a powerful, and to our mind an unanswerable plea for the physiological method of the study of mind, so far as physiology will at present allow us to go, for the author does not claim that this science is yet so complete as to enable us to lay aside as entirely worthless the former exclusively metaphysical method, for in competent hands its results may be and have been useful. He begins with an account of the historical development of the inductive method as applied to the interrogation of the mind, and shows that self-consciousness—the favorite resort of the schoolmen—is inadequate, contradictory, and unreliable. It gives no account of the mental phenomena displayed by the infant, the idiot, or the insane; it makes no allowance for the bodily conditions which underlie mental manifestations, nor for unconscious mental action, which forms so large a share of the mind's work, nor does it take notice of the influence exerted upon the brain by the other organs of the body. The physiological method, however, is only one (I.) division of the objective method of study of the mind, and others not less valuable are (II.), the study of the *plan of development* of mind, as exhibited in the animal, the barbarian, and the infant; (III.), the study of the *degeneration* of mind, as exhibited in the various forms of idiocy and insanity; and finally (IV.), the study of the *progress* and *regress* of the human mind as exhibited in history. All these should not be neglected by him who would be thoroughly prepared for the arduous task of constructing a positive mental science. It were well, then, to unite the empirical and the rational faculties, which in truth was the mode advocated by the great master and originator of inductive method, in the investigation of mental as well as natural phenomena; for the question of the value of the two methods of reasoning—inductive and deductive—is often merely a question of the capacity of him who uses it. The chapter closes with a most brilliant estimate of the differ-

ence between genius and mediocrity, and is especially consoling to those of us poor mortals who are destined to plod along in ordinary paths, and occupy obscure, or at all events unprominent niches in the temple of fame.

We cannot undertake to follow Dr. Maudsley through the remaining chapters of this part of his book, for to give even the most meagre outline of them would well nigh take up the bulk of a whole number of the JOURNAL. We have drawn this skeleton of his introductory chapter, that our readers may see the conciseness and soundness of his argument, and the boldness of his thought. It is to our mind a complete demolition of the position of the advocates of the metaphysical method of study of the mind, and we expect soon to see them all wheeling into line, though the masterly fight which the ablest living exponent of this school (Mr. J. Stuart Mill) has so recently made, may encourage some to hold on to a forlorn hope.

Part 2d, on the *Pathology of the Mind*, opens with a consideration of the causes of insanity. While the description of each is most admirably exact, the fact of the concurrence of various causes is constantly kept sight of. This chapter is the most concise and lucid handling of this topic with which we are acquainted, and should be familiar to every physician engaged in practice. Chapter II., on the Insanity of Early Life, brings out prominently the idea that children, and very young ones, too, may and do become insane, and that many eccentricities of thought, word and deed, are frequently attributed to perverseness or bad temper, and punished accordingly, when a wiser counsel and a more thorough understanding of the nature and the modes of mental action in children would set down these eccentricities to the score of a morbid condition of mind, and would therefore treat them rationally and circumspectly.

As to the Varieties of Insanity (Chap. III.), Dr. Maudsley suggests its division primarily into two

classes—of insanity without positive delusion (*affective insanity*), and insanity with delusion (*ideational insanity*). This classification, with proper subdivisions, general as it is, he claims is more scientific than the method which, in the attempt to be too accurate, ascribes to each variety an exactness that does not in reality exist, and is a positive hinderance to knowledge. Typical and instructive cases are introduced by way of illustration of the subdivisions of these two classes.

In the *Pathology of Insanity*, (Chap. IV,) Dr. Maudsley takes ground that in all cases of mental disease, there must be some organic change in the brain, although we may not be able to discover it. Then follow chapters on the diagnosis, prognosis, and treatment of insanity, each characterized by the same bold and brilliant thought, the same charming style of composition, and the same sterling sense, that we have found all through. We lay down the book with admiration, and we commend it, most earnestly, to our readers as a work of extraordinary merit and originality—one of those productions that are evolved only occasionally in the lapse of years, and that serve to mark actual and very decided advances in knowledge and science.

Reports on the Progress of Medicine.

VENEREAL DISEASES.

By F. J. BUMSTAD, M.D., Professor of Venereal Diseases at the College of Physicians and Surgeons, New York; and F. R. STURGIS, M.D.

ART. I.—*Syphilitic Paraplegia*. [Gaz. Méd. de Lyon, Jan. 1, 1867.]

PROFESSOR JAKSCH, in the *Rager Medizinische Wochens.*, Schmidt's *Jahrbücher*, states that hemiplegia is the most frequent form of syphilitic paralysis; that it appears from ten to thirty years after the primary lesion, and in an insidious manner. Out of fifty-two patients

thus affected, twelve died, half of them from softening of the brain, with or without gummata; twenty-nine recovered; six improved; and five remained incurable.

Zambuco and Gjør, in opposition to this author, believe that no appreciable lesion of the nervous centres occurs in syphilitic hemiplegia, in support of which belief they cite cases. Prof. Jaksch, however, thinks that careful search will establish the presence of such. He considers that the softening of the brain—which is the starting point of the paralysis—occurs in three ways: 1st, from the presence of gummata in the brain-substance itself; 2d, from the development of the same morbid structure beneath the pia-mater, pressing upon the cerebral tissue; and, 3d, from anæmia, resulting from thrombosis, or the obliteration of an artery of the brain, in consequence of its walls having become the seat of a syphilitic neoplasm; and to this he refers the large destructions occasionally found in the cerebral substance. Abscesses of the brain, he regards as arising from an extension of the pus from caries of the cranium, passing from the meninges to the brain; and also, from inflammation and suppuration of gummata.

Prof. Jaksch has also seen twenty-five cases of syphilitic paraplegia. This affection usually assumes the form of locomotory ataxia, and is commonly preceded by pain and cramps in the muscles about to be attacked. These symptoms either disappear during the progress of the disease, or else take on a periodic character. Syphilitic hemiplegia, says Prof. Jaksch, is characterized by a loss of sensibility and motion in the course of some of the cerebral nerves. He furthermore adds, that a syphilitic lesion of the brain may produce paralysis of the lower limbs only.

Gummata and gelatinous tumors of the vertebræ, meninges, and spinal cord; thickenings and vegetations of the pia-mater; softening, atrophy and destruction of nerves leading from these growths,—have been demonstrated by autopsies.

ART. 2.—*Blennorrhagic Arthritis in Women.* [Ibid., Jan. 1, 1867.]

CASE 1. Is that of a woman, thirty years of age, who, free from other venereal disease, and from any rheumatic tendency, consulted M. Edmond Langlebert for an attack of acute blennorrhagia. She suffered from frequent desire to micturate, and severe pain during the act. Examination, by pressure of the urethra from behind forward, showed a gonorrhœa situated in the deeper portions of the canal. There was no inflammation of the vulva or vagina. On the next day she returned, complaining of pain in her right wrist, which prevented her closing the hand. There proved to be quite a large swelling opposite the radio-carpal articulation, without discoloration of the skin. It was unattended with chills, fever, or any symptoms of general reaction, although the pain in the wrist and fingers was very severe. The urethral discharge was unchanged; the other symptoms had disappeared. It should be added, that the joint had sustained no external injury. After twenty days' treatment with belladonna ointment, flax-seed poultices, and opiate liniments externally, and with cubebs, internally, the urethral discharge and rheumatism had disappeared; nothing remaining except a slight stiffness of the fingers, which gradually passed away.

CASE 2. [Ibid., March 1, 1867.] Is that of a healthy woman, nineteen years of age, who was attacked with arthritis of the left wrist, of three days' duration, consequent upon acute blennorrhagia of the vagina and urethra. The left wrist was very painful; the carpal, metacarpal, and lower portions of the fore-arm were swollen, but the skin covering those parts was not reddened or inflamed. Pressure, flexion and extension of the hand caused severe pain; this was more marked in the dorsal than the palmar region, over the extensor tendons. There was no fever, nor sweating, nor cardiac disturbance; but loss of appetite and a foul tongue. No other joints except the left wrist were attacked.

Eight days before the appearance of the above symptoms, and following impure coitus, she had experienced pain on micturition and tingling in the urethra. At the end of seven weeks the pain and tingling had disappeared, and the movements of the fingers and wrist were normal. The vaginal discharge had become chronic, and appeared to have undergone no modification from the arthritis.

CASE 3. [Ibid., March 1, 1867.] Is that of a woman infected by her husband, in whom the hand, fingers, and wrist, became swollen and painful, without the supervention of fever. She suffered from painful micturition and a discharge; but whether this latter was urethral, or only vaginal, was not ascertained, as no examination was made. There was no reason in this case to suspect any rheumatic tendency.

In commenting upon these cases, the author states that the chief reason why women are so seldom attacked with blennorrhagic arthritis, as compared with men, is on account of the rarity of urethral blennorrhagia among them. Provided urethritis be present, they are as liable to it as the other sex. He also thinks that another reason may be found in the short extent and slight sensibility of the urethra in women.

He expresses the somewhat singular opinion that the arthritis may be produced by reflex action.

ART. 3.—*Comparison of Venereal Diseases in Different Countries.* [Ibid., Jan. 16, 1867.]

M. LAGNEAU considers the evolution of syphilis to be less rapid in cold than in warm countries.

Gonorrhœa is quite frequent in the United States, but rare in China; and among the natives in the Levant and Algeria, it is only seen in those who are in communication with Europeans.

Syphilis is less easily cured in cold than in warm countries. In negroes it is easily cured.

When two nations come together in the same country, syphilis is the more severe among that people who previously had it the lighter.

Those who contract syphilis in one country, find their symptoms improve in a warmer climate, and become worse in a colder.

Syphilis, although universal, does not seem to prevail to any extent in Iceland; and in the interior of Southern Africa, according to Livingstone, it is susceptible of spontaneous cure.

The spread of syphilis is proportionate to the insufficiency of prophylactic measures.

ART. 4.—*The so-called Blennorrhagic Diathesis.* [Ibid., Feb. 1, 1867.]

M. FOURNIER, at the Société Médicale des Hôpitaux, January 11, 1866, discussed the propriety of considering blennorrhagic arthritis as dependent upon a blennorrhagic diathesis. He denies the existence of such a diathesis on the following grounds:

1st. The extreme rarity of arthritis, as compared with the number of cases of blennorrhagia. According to his statistics, out of 1,912 cases of blennorrhagia, there were but 41 cases of arthritis, and these occurred in 31 of the patients; in round numbers, about 1 in every 62 cases of clap. Comparing these facts with those noticed in syphilis, and in connection with the propriety of the term "lues" as applied to gonorrhœa, he observes, that while in syphilis all the cases present undoubted constitutional symptoms, none being exempt, in gonorrhœa it is exceptional for those affected to be attacked with rheumatism or other complications indicating the presence of a diathesis. He therefore considers these complications as accidental, and not as the expression of a diathesis.

2d. Diatheses, properly speaking, are not dependent upon a local lesion for their origin, nor do they disap-

pear with that local lesion, as is the case with gonorrhœal rheumatism. Who has ever heard of a post-gonorrhœal rheumatism?

3d. A diathesis does not multiply and repeat itself with every fresh attack of the disease.

4th. It does not depend upon any individual predisposition, nor is it influenced by such; and he cites the fact, that a person once attacked, during his first clap, with rheumatism, is almost sure to suffer with the same complication on each succeeding attack, whilst in syphilis, which is properly a diathesis, the symptoms appear independently of any individual idiosyncrasy.

5th. If blennorrhagia were dependent upon a diathesis, its complications should appear, no matter where the disease is located; whereas rheumatism occurs in urethral gonorrhœa alone, this complication being absent in cases of gonorrhœa of the vagina, of the uterine neck, and vulva. "In truth, it is a singular diathesis," he says, "which produces rheumatism when confined to one part only, but loses its power when present elsewhere."

ART. 5.—*On the Nature of Job's Illness.* [Gaz. Méd. de Lyon. Feb. 16, 1867.]

At the *Séance* of the *Société Impériale de Médecine de Lyon*, of January 21, 1867, M. Nollet read a paper on the nature of Job's illness, which he considered to have been scorbutus, for the following reasons: the nervous phenomena, cachexia, severe stomatitis, fetid breath, difficulty in eating, wasting of the body, abdominal pains, and diarrhœa. He also considers that the dark discolorations of the skin, the petechial eruptions, the purpura, and the effusions of blood in the internal organs, were so many pathognomonic signs of the disease. He examined in detail the claims to consideration of syphilis, elephantiasis græcorum, psoriasis annulare, and lepra (probably psoriasis, also), as well as

those diseases dependent upon vegetable parasites, rejecting them all in favor of scorbutus.

In the discussion which followed the reading of this paper, M. Diday said, that he regarded the disease in question to have been tertiary syphilis, objecting, among other reasons, to scorbutus, on the ground that this disease is epidemic or endemic, while Job seems to have been the only one affected; and also, that if the gums had been sore, and the teeth loosened, as stated, Job could not have held long conversation! M. Gerin thought that the disease was general eczema, from the size of the ulcers, the color of the crusts, and their pulverulent nature. He also added, that scorbutic or syphilitic ulcers of so grave a nature as those described, would have been incurable.

M. Gailleton, rejecting the opinions previously expressed, conceived the disease to have been psoriasis or pemphigus, basing his opinion upon the fact that, although anæsthesia of the skin existed at the commencement of the attack, hyperæsthesia with nocturnal pains came on towards the close; and he cited cases of lepra which had been observed in Mexico, in confirmation of his view.

M. Nollet, in reply to M. Diday, stated that scorbutus, although generally endemic and epidemic, is sometimes sporadic; that Job did not talk in a loud voice; on the contrary, his voice was muffled; that his disease could not have been tertiary syphilis, first, because there is no mention of contagion; and secondly, because the attack was not chronic; and, moreover, all the symptoms pointed to scorbutus.

To eczema he objected inasmuch as abdominal pains, hæmorrhages, and bloody diarrhœa, are rare in that disease. Psoriasis and pemphigus he also rejected; the first because the psoriasis of those times was a disease of parasitic origin, and was therefore contagious, while Job's disease was not; and also, because an eruption dependent upon a vegetable parasite is polymorphous, which was not the case here; the second, because pem-

phigus does not attack the mouth, neither is there a black form of the disease.

[It would appear that the only thing wanting at this interesting discussion was the exhibition of a photograph of the distinguished sufferer, which would have materially added to the value of the diagnosis expressed by the different members of the *Société Impériale de Médecine de Lyon*!—F. J. B.]

ART. 6.—*Syphilis by Conception*. [Ibid., March 1, 1867.]

The first case is one reported by M. Diday. It occurred in a woman who had been married for two years. Her husband had been treated by M. Diday three months before marriage, August, 1864, for a palmar psoriasis and mucous patches of the mouth. At the time of his marriage, he was free from all symptoms of syphilis and had remained so ever since. On December 30, 1866, he returned to M. Diday, accompanied by his wife. This lady had previously been regular in her menses every twenty-one days, but her last period had been delayed ten days, not occurring until December 10, and was then attended with severe pain. Her preceding period ended November 11. On the 8th December she experienced cephalalgia, which was still very severe when M. Diday saw her upon December 30. At this time M. Diday discovered an incipient general roseola, pain in the left clavicle, and engorgement of the sub-occipital ganglia. No chancre, or any traces of one, could be found upon the vulva, anus, or neck of the uterus; nor upon the lips, tongue, groins, or in the throat; and the inguinal, sub-maxillary, and axillary ganglia were unaffected. The husband presented at the time no symptoms of syphilis, nor had there been any since his marriage (two years ago). In his comments upon the case, Diday considers the woman to have become pregnant about the 11th of November, after her menses, that this conception was

the origin of her syphilis; in other words, that the ovum was infected by the sperm of the husband, and that thus the wife was contaminated; and he considers this belief strengthened because he found no traces of a chancre in the mother to account for the commencement of her trouble. He then draws attention to the rapid evolution of the disease in this case, which, dating from the close of the last period but one, (November 11,) to the time of the appearance of the cephalalgia, etc., (December 8,) was twenty-seven days.

The second case is reported by Dr. Delore: Mr. X—, in 1857, had an indurated chancre. Two months after, secondary syphilis supervened, characterized by mucous patches of the mouth and anus, which were very obstinate; a syphilide over the entire body, and especially on the hands, which was subject to frequent relapses. Treatment was continued for a long time; and during 1858, iodide of potassium was combined with mercurials. The most obstinate symptom of the disease was palmar psoriasis of the right hand; this, however, finally yielded, and at the close of the year 1858, Mr. X. was considered cured. In April, 1861, he had herpes præputialis, and in January, 1862, a clap, but during both these attacks, there was not the slightest manifestation of syphilis. The patient married in April, 1866. About September 1, 1866, Dr. Delore was called to attend the patient's wife for an abortion. The product of this abortion was a small, ill-developed placenta; but there were no traces of an embryo. Everything was going on well, when on the fourth day, Mme. X. suffered from acute facial neuralgia, attended with lachrymation and photophobia, and extending to the vertex. It was supposed to originate in several decayed teeth, which had troubled her in a similar manner two years before. On the twentieth day after confinement, Dr. Delore noticed swelling of the skin of the forehead, with redness which resembled erythema nodosum. This disappeared at the end of a month under treatment with quinia and Vichy water. Nothing fur-

ther was heard from Mme. X. until December 26, 1866, when she presented herself covered with a papular syphilide, which rapidly yielded to mercury and iodide of potassium. Mr. X. denied any return of syphilis, but Dr. Delore found, on examination, indurated ridges as well as slight desquamation of the epidermis of the right hand.

ART. 7.—*Albuminuria resulting from Secondary Syphilis.*
[Ibid., March 1, 1867.]

Two cases are reported by Dr. Perroud. In the first, the patient entered the Hôtel Dieu of Lyons on the 14th of November, 1865. Four months previously he had chancre, with induration of the inguinal ganglia, followed, some weeks after, by eruptions in the throat, on the fundament, and the skin. For two months he had suffered from acute lumbar pains. The anasarca had rapidly become general.

At his entrance into the hospital, the patient presented a well-marked roseola, mucous patches of the tonsils and scrotum, and induration of the ganglia in both groins. The induration of the chancre had disappeared. Albuminuria abundant, general serous effusion, dyspnœa, and mucous râles in both lungs. No fever.

On November 23, the anasarca began to disappear, and by the 8th of December had entirely gone. The treatment had been protoiodide of mercury, and perchloride of iron.

On December 11, there was no anasarca or syphilis of the skin; albuminuria much diminished.

From the 2d of January, 1866, to 2d of February, the patient underwent renewed mercurial treatment at the hospital. When he left, there was still slight albuminuria. In March, 1866, he returned with syphilitic iritis. Urine still albuminous.

CASE 2.—This patient entered the Hôtel Dieu 2d of January, 1866. Two months previously he had con-

tracted an indurated chancre, attended with induration of the inguinal ganglia: subsequently there were eruptions upon the scrotum, throat, and body. The anasarca had been general but a few days.

The following symptoms were present upon his admission into hospital: Mucous patches on the scrotum and around the anus, upon the tongue and upon the tonsils, and crusts upon the scalp. The albuminuria was considerable; lumbar pains were present; there had been no fever. Protoiodide of mercury, perchloride of iron, ergotine, and iodide of potassium were administered, without favorable result. On the 26th of January the syphilitic eruptions had entirely disappeared, but the Bright's disease was worse.

In February, the anasarca had diminished, owing to a spontaneous diarrhœa, but the patient died on the 13th of the same month, with symptoms of dyspnœa and suffocation.

The autopsy showed œdema of the lungs; the kidneys showed the changes which are perceived in the third stage of the albuminous nephritis of Rayer.

ART. 8.—*Abscesses of the Prostate consequent upon Gonorrhœa.* [Ibid., March 16, 1867.]

The first case is reported by Dr. Conche. It occurred in a man who had gonorrhœa four days after impure coitus, and who had used the abortive treatment by the nitrate of silver. The day following the injection the discharge was less, but the patient experienced severe pain in the deeper portions of the canal, and a sense of weight in the perinæum. These symptoms increased, and painful and difficult micturition, rectal tenesmus, painful defecation, with chills and feverishness, were superadded. Dr. C. saw the patient nine days after the gonorrhœa had made its appearance, and diagnosed enlargement and abscess of the prostate, which he treated by rectal incision and tonics.

CASE 2.—Reported by Drs. Marmy and Genaudet, This patient also derived his trouble from the use of irritating injections for a recent clap. He reported difficulty of micturition, and pain in the hypogastrium, along the urethra, and in the perinæum. At a later stage there was fever, night-sweats, loss of appetite, cachexia, and loss of flesh. The abscess at first opened spontaneously into the urethra, giving vent to a large quantity of pus. After a short time, fluctuation was apparent in the perinæum, and an opening was effected by Vienna paste. The patient died four and a half months after his entrance into the hospital, of peritonitis.

The autopsy showed thickening and adhesions of the peritonæum to the intestines, the liver, and spleen. There was also extensive tubercular disease of the lungs, with cavities at their apices, and a tubercular abscess of the right kidney, with crude tubercles in the renal parenchyma. The mucous membrane of the bladder was thickened, and the coats of bladder were merged below and behind into the subperitoneal tissue, in the midst of which, and externally to the vesiculæ seminales on either side, were two abscesses, connected internally with the bladder; below, with the superior perineal aponeurosis, and above, with the peritonæum. The prostate was entirely destroyed, showing nothing but a large cavity, which was connected with the bladder and rectum. The intra-prostatic portions of the ejaculatory ducts were also destroyed, and the vesiculæ seminales also were inflamed. At the lower and posterior portion of the prostatic abscess was a third opening, through which the pus burrowed between the bladder and rectum, and through which it had infiltrated the perinæum.

In commenting upon these cases, M. Conche dwelt upon the varying gravity of prostatic abscesses, according as they opened into the rectum or urethra. This gentleman was in favor of opening a prostatic abscess early, and preferred an incision "per rectum" to any other. He also deprecated large incisions, considering that

they gave rise to danger, from the entrance of fœcal matter into the abscess ; giving the preference to a small and submucous opening of the abscess.

He considered that if an opening was made early, and within the mucous membrane, the numerous complications of prostatic abscesses, viz., destruction of the gland and of the ejaculatory ducts, phlebitis, and purulent infection, would be avoided ; and that the introduction of fœcal matter and its consequences would be rendered impossible. He also called attention to the danger of abortive injections in gonorrhœa, when practised by inexperienced persons.

M. Icard reported two cases : the first in a man sixty years of age, who had for some time suffered from stricture of the urethra. Without any appreciable cause he was seized with fever, frequent desire to urinate, and a sensation of weight in the perinæum. An abscess formed, which opened into the rectum, and speedily cicatrized. The second was that of a young man, 25 years of age, who suffered from a stricture which required the use of a bougie. In consequence of an attempt at catheterization by an inexperienced person, a false passage was made, which induced the following phenomena : fever, frequent desire to urinate, complete retention, and rectal tenesmus. After leeches, belladonna, and hot baths had failed to relieve the retention, recourse was had to a catheter, which penetrated a cavity, first appearing to be the bladder, but which proved to be an abscess, as shown by the pus which flowed from the urethra. He then passed his water himself. The retention lasted for five days, and at the end of ten days the suppuration ceased, and the patient supposed himself well. A few days after, the retention was renewed, but yielded to leeching and baths. Three days after, the patient, while urinating, evacuated "per urethram" two tea-spoonfuls of pus. The stricture was dilated, and injections, at first emollient and afterwards detergent, were made into the abscess, and the patient finally recovered.

M. Delon reports two cases: one in a doctor of Lyons who had suppurative prostatitis, which opened into the urethra, and discharged for more than a month. Recovery was complete. The second in an officer in the marines, who was treated by internal urethrotomy for a urethral stricture. A good deal of hæmorrhage followed, which was checked by pressure upon the perinæum. Some time after, he had a prostatic abscess, the contents of which were evacuated by means of a trocar, and the abscess healed in the course of a few days.

ART. 9.—*Mercurial Collodion for Syphilitic Maculæ.*
[Wiener Med. Wochenschrift. 1867. No. X, p. 155.]

This case is one reported in the *Presse Médicale Belge* by M. Clerc. It occurred in a woman whose face and neck were covered with dirty yellow maculæ, which disappeared but slightly under pressure; alkaline, corrosive sublimate, and sea baths had been used without benefit. The collodion (0·5 grammes of corrosive sublimate to 15 grammes of collodion) was applied with a camel's-hair brush to each spot, and in about eight days they had entirely disappeared. The only inconvenience of the application was intense itching.

ART. 10.—*Acute Glandular Inflammation in the Diagnosis of Venereal Diseases.* [Wiener Med. Wochenschrift. No. XIV. 1867.]

Professor Sigmund arrives at the following conclusions:

Primary syphilitic lesions are, as a rule, very seldom accompanied by acute glandular inflammation and abscess.

Acute inflammation and abscesses of the glands are developed in consequence of the skin and connective tissue being undermined by inflammatory and purulent

deposits ; when this condition of things obtains in those places which are the seat of syphilitic papules, i. e., primary lesions and indurations, inflammation and abscesses occur.

Contagious venereal ulcers, which, in the beginning of their course appear to be simple, may take on later a syphilitic character, and then acute inflammation and abscesses of the glands frequently occur.

The appearance of glandular inflammation and abscesses is not absolutely a distinctive sign of contagious venereal ulcers ; and persons who are thus affected, cannot be considered as positively exempt from the development of syphilis.

The diagnosis of cicatrices occurring from previous glandular suppuration, and the exact nature of the disease which induced them, should be made with the greatest caution.

ART. 11.—*Coincidence of Vegetations with different forms of Syphilis.* [Wiener Med. Wochenschrift, No. XX. 1867, p. 308.]

Dr. Gustav Wertheim does not deny the existence of vegetations (to which, with Virchow, he gives the name of “acuminate condylomata”) of a purely gonorrhœal nature, but says :

1. That acuminate condylomata are not consequent upon blennorrhagia alone.

2. They may occur as the sequence of previous local ulcers, either alone, or in connection with various manifestations of general syphilis.

3. Such as antecedent broad condylomata, (breiten condylomen, C. lata, mucous patches,) or in connection with other general manifestations.

4. That they may precede by many months general syphilis as an accidental symptom.

ART. 12.—*Myositis Syphilitica*. [Ibid., 1867. No. XXIV. p. 378.]

This case is that of a woman who entered M. Nelaton's service for a tumor of the left side of the neck, which extended from the mastoid process of the temporal bone to the clavicle, and beneath the sterno-mastoid muscle, which was stretched over the tumor. This growth involved the skin, the aponeurosis of the cleido-mastoid muscle, and the adipose and cellular tissues, to the depth of the sheath of the carotid artery. The integument covering it was tense, reddened and hard; and had lost its softness and suppleness. There was but little pain complained of; and the pressure of the tumor caused no inconvenience. It was diagnosed as a "syphilitic gummous tumor of the muscle;" the diagnosis was verified by the presence of maculæ on the skin, and by the history of the case. She acknowledged that she had been infected (although no trace of the primary lesion could be seen), and that she had had a syphilitic roseola, for which she was treated with mercurials internally, and baths of corrosive sublimate. She stated she had noticed no further symptoms, until this tumor made its appearance. (Date of the primary lesion is not given).

ART. 13.—*Treatment of Purulent Blennorrhagic Conjunctivitis by means of frequent Injections of strongly alcoholized Water*. [Ibid., 1867. No. XXV. P. 394.]

Two cases are reported by M. Gosselin in the fifth number of the *Gaz. de Hôpitaux* for 1867, of this method of treatment. The first was that of a man 22 years of age, who had been suffering from gonorrhœa for four weeks. Five days before his entrance into hospital, he experienced heat and pain in his left eyelid, for which he was advised to bathe his eyes in his urine. Five days after this treatment, he presented himself to M. Gosselin, who found extensive swelling of the eyelid,

a purulent secretion, and marked injection of the palpebral conjunctiva, and a similar injection with extensive chemosis of the ocular conjunctiva. The cornea, iris, and anterior chamber were normal.

The same day an injection was made every two hours beneath the lid, with a mixture of $\frac{1}{2}$ alcohol and $\frac{1}{2}$ water.

On the following day, the suppuration had sensibly diminished; but as the patient complained that the injection caused severe chills, its strength was diminished one-half. The same treatment was continued every two hours, and a mixture containing copaiba, cubeb, and an opiate was exhibited internally.

This treatment was continued for fifteen days, when the only traces left of the disease were a slight redness and swelling of the semilunar fold of the conjunctiva.

The second case was that of a man, 38 years of age, in whom, without appreciable cause, both eyes had been attacked for three days previous to his admission into the hospital. His clap was of three weeks duration. Both lids were extensively reddened and swollen; the conjunctivæ were injected and chemotic; there was abundant suppuration from both eyes, and severe pain; both cornea were transparent.

An injection of alcohol and water, equal parts, was made every two hours for the first two days; on the third and fourth day, every four hours; and from the fifth to the eighth day, three times in the twenty-four hours; a collyrium of sulphate of zinc and sulphate of copper was then substituted; and an opiate mixture containing cubeb and copaiba was given internally.

In both cases after the suppuration and chemosis had disappeared, superficial ulceration of the cornea was seen, which did not last long and was attended with no bad results.

ART. 14.—*Syphilis in the Lower Animals.*

This communication is from M. Auzias Turenne,

and as it appeared in the 5th volume of the JOURNAL, page 153, we refer our readers to that article.

ART. 15.—*Comparison between Gonorrhæal and Genital Rheumatism.* [L'Union Méd. 1867. pp. 68, 83.]

M. Hervieux, commenting upon the various forms of rheumatism, more particularly those connected with blennorrhagia and child-bed, lays down the following propositions :

That one form of rheumatism of puerperal women is in all its symptoms similar to blennorrhagic rheumatism; he thinks it is probably owing to the absorption of the lochial discharge, which is endowed with a poisonous principle, and which exercises its action upon certain points. This singular theory is derived from his opinions as to the cause of blennorrhagic rheumatism, which are as follows :

1. The blennorrhagia usually precedes the rheumatic symptoms, and it is at the moment that the blennorrhagia attains its maximum intensity, that these symptoms appear.

2. The abundance of the discharge, the severity of the pain accompanying micturition, and the acute irritation of the urethra, are the most general conditions upon which the articular rheumatism depends.

3. The instant the rheumatism is developed, the discharge is sensibly diminished, and in some cases ceases completely ; it may remain stationary for some time.

He thinks that the rheumatism depends upon a true poisoning (*véritable empoisonnement*), and believes in the existence of a diathesis, a general disease, the origin of which is the urethral discharge, the rheumatic pains being the local manifestation.

ART. 16.—*An Algoid Vegetation the Cause of Syphilis.*
[Am. Jour. of the Med. Sci. Oct. 1867.]

Dr. J. H. Salisbury, Professor of Histology in Charity Hospital Medical College, Cleveland, Ohio, states that he has discovered an algoid vegetation in chancres, to which he gives the name "cryptos syphilitica," and which he conceives to be the cause of syphilis. "This algoid growth," he states, "finds a fertile soil in the connective tissue only;" and a different species which he has discovered, and considers to be the cause of gonorrhœa, develops only in epithelial cells, which, he says, "explains why the former becomes readily constitutional, while the other is only a surface disease."

Varia.

THE POSTURAL TREATMENT OF PROLAPSE OF THE FUNIS—AN HISTORICAL SKETCH.—The two cases, recently published by Dr. Dyce and reprinted in this Journal for May, of prolapsed funis treated by Dr. Thomas's postural method, have given rise to considerable comment in Germany as regards the novelty of the practice. We give the gist of the matter as an item of historical interest, and without in the least pretending to question the claims of our distinguished townsman to an independent and original discovery of the method.

It is well known that Kiestra recommended in 1855 essentially the same procedure, but speaks of it as a revival of an old treatment long ago described by Camper and Deventer. K. F. J. Bernbaum* has recently been looking up the literature of the subject, and finds that quite frequent mention has been made by authors of the advantages to be derived from posture in the treatment of cases of prolapsed funis. The works of Camper, published about the middle of the 17th

* Monatschrift f. Geb. Kunde, Oct. 1867.

Century, and referred to by Kiestra, he had no means of obtaining access to. Deventer* considers the subject of prolapsed funis *in extenso*, takes up its different modifications, its effect upon parturition and the life of the child, and the treatment it demands. In cases where the cord was pressed against either ilium, he directed to place the woman upon the corresponding side, with raised pelvis, and with the hand (right hand if on the left side, and vice versa,) to lift the head, and replace the cord, then as seemed advisable, either to bring the head into the pelvis, or to turn and extract by the feet. When the cord was pressed against the pubis or the sacrum, he advised that the midwife should place the woman upon her knees with her body thrown forward, and that, in this position, the accoucheur should raise the head, and return the cord; if the woman should be too weak for this, she should be placed upon the side with one limb drawn up under the body. John Mowbray† advises that the woman, if strong enough, should be placed upon her knees and elbows in cases where the cord lay next the sacrum or the pubis. Henry Bracken, a pupil of Boërhaave,‡ proposed returning the funis in head presentations, with the woman placed upon the knees, and afterward, to bring the foetal head into the pelvis. Ludwig Wilhelm von Knœr§ devoted a long chapter to funis presentations. He says: "Introduce the hand so soon as the membranes rupture, and according to the position of the child, perform either podalic or cephalic version, placing the woman at the same time upon her knees to prevent the protrusion of the cord." George Daniel Boessel|| recommends turning in cases of funis presentation, and in cases of difficulty to perform version with

* *Operationes Chirurgicæ novum lumen exhibentes obstetricantibus*, Lugd. Bat. 1701.

† *The Female Physician*, containing all the Diseases incident to that Sex. London, 1724.

‡ *Midwife's Companion; or a Treatise of Midwifery*, London, 1737.

§ *Frauen Zimmer Medicus*, Leipsic, 1747.

|| *Gründlegung zur Hebammen Kunst*, Flensburg and Leipsic, 1756.

the woman placed upon the knees. In recent times, Van Ritgen has certainly been the most ardent partisan of postural methods of treatment. In his work entitled "Auzeigen der Mechanischen Hülfen bei Entbindungen," published in 1820, he recommends them in a great variety of circumstances, but not then for prolapsed funis; but in his "Lehr und Handbuch der Geb. Hülfe für Hebammen," (Mainz, 1838,) he says: "When the funis presents, the midwife should instantly send for the accoucheur; meanwhile she should herself place the woman, if strong enough, upon her knees and elbows, and attempt the replacement of the cord; if the woman is too weak to admit of this, she should be placed upon her side with elevated pelvis. That side should be chosen upon which the funis is not situated. If the manipulation is successful, the posture should be maintained to prevent a recurrence of the prolapse." He recommends the position upon the elbows and knees for cases of prolapsed funis and transverse presentations in breech or foot presentations, also, where the head is movable above the brim, and where there is no attainable presenting part. He advises returning the funis high up with the hand, and then to let it fall into the uterus where it would no longer be subjected to pressure. After reposition place the woman upon her side, with raised pelvis. Sometimes the postural method suffices without any manipulations. Kiestra* advises the position upon the knees and elbows, in cases where the cord was felt near the head previous to rupture of the membranes, to prevent the occurrence of prolapse. After the rupture of the membranes, he says the same position should be employed to facilitate the return of the cord, and should be maintained until the head is fairly engaged in the pelvis. Where the position could not be endured long enough, he counseled placing the woman in a half kneeling, half recumbent posture, with a side supported by cushions. Theobold, in 1860, hit

* Nederl. Weckbl., April, 1855.

upon the same idea. He considered the most favorable condition for the return of the funis was to place the woman upon her head, but in view of the difficulty attending the execution of this manœuvre, compromised the matter by suggesting the position upon the elbows and knees.

ORTHOPÆDIC APPARATUS IN THE EXPOSITION.—From the official report of the jury to which was assigned the department of orthopædic apparatus, we extract the following, relative to the instruments of our townsman, Dr. C. F. Taylor.

“So far as concerns orthopædy, there is in reality nothing essentially new in the Exposition, if we except the collection of apparatus of Dr. Taylor of New York. Of this, a part is intended to correct the spinal curvatures following Potts’ disease and scoliosis. Another part has in view the cure of the muscular paralysis peculiar to infancy, by the aid of the local movements of the muscles. Dr. Taylor has exhibited models of some ingenious instruments, which allow certain muscles, or groups of muscles, to be developed by the aid of continued local exercise.”

“Dr. Taylor’s spinal apparatus is very remarkable, and differs entirely from the other instruments of this class displayed in the Exposition.”

Then follows a description of Dr. Taylor’s various instruments, quoted from the remarks of Dr. Bouvier to the Academy of Medicine. This description we need not repeat, as the apparatus is well known to all the profession here. In speaking of the instrument for the treatment of hip-joint disease, the Commission very justly give the credit for the idea of the counter-extension to Dr. Davis of this city, but acknowledge Dr. Taylor’s improvements on the same. The fact that an American collection of surgical apparatus should be the only one deemed worthy of notice in the official report of the Exposition, is a matter wherein we may pardonably indulge some little self-congratulation.

THE LIMITS OF THE HUMAN EAR.—Prof. Tyndall, in a course of lectures on “Sound,” delivered before the Royal Institution of Great Britain, states that the perception by the ear of musical sounds, and the range of hearing in general, is limited by quite narrow bounds.

Savart fixed the lower limit of the human ear at eight complete vibrations a second; and to cause these slowly recurring vibrations to link themselves together, he was obliged to employ shocks of great power. By means of a toothed wheel and an associated counter, he fixed the upper limit of hearing at 24,000 vibrations a second. Helmholtz has recently fixed the lower limit at 16 vibrations, and the higher at 38,000 vibrations a second. By employing very small tuning-forks, the late M. Depretz showed that a sound corresponding to 38,000 vibrations a second is audible. Taking the limits assigned by Helmholtz, the entire range of the human ear embraces about 11 octaves. But all the notes comprised within these limits cannot be employed in music. The practical range of musical sounds is comprised between 40 and 4,000 vibrations a second, which amounts, in round numbers, to 7 octaves. “The deepest tone of orchestra instruments is the E of the double bass, with $41\frac{1}{2}$ vibrations. The new pianos and organs go generally as far as C¹ with 33 vibrations; new grand pianos may reach A¹¹ with $27\frac{1}{2}$ vibrations. In large organs a lower octave is introduced, reaching to C¹¹ with $16\frac{1}{2}$ vibrations. But the musical character of all these tones under E is imperfect, because they are near the limit where the power of the ear to unite the vibrations to a tone ceases. In height the piano-forte reaches to A^{1v} with 3,520 vibrations, or sometimes to C^v with 4,224 vibrations. The highest note of the orchestra is probably the D^v of the piccolo flute, with 4,752 vibrations.”

ANIMAL INGRAFTING.—Who would have supposed that a rat's tail after removal of the skin might be kept in a glass tube for 62 hours at 15°—17° Fahr.; or kept

for a still longer period in moist air at 121° Fahr.; or after being subjected to a temperature 31° below the freezing point; or, finally, after being dried in an air-pump over sulphuric acid, and enclosed in a glass tube for three days, then exposed to a temperature of 175° Fahr. in a hot air-chamber, and again enclosed in a glass tube for four days—who would have supposed that the unfortunate tail might be subjected to such treatment and yet live on its being placed below the skin of the back of a rat? These remarkable facts regarding the vitality of the tissues have been ascertained by Dr. Bert, assistant to Claude Bernard, *Comptes Rendus*, LXII, p. 89, and *Annales des Sciences Naturelles*, 1866. Through Dr. Bert's kindness I had an opportunity of witnessing the results of two such experiments; in one, the revived tail had been frozen, in the other it had been kept for three days in moist air at 121° Fahr.; on the animal's being injected it was found that there was free vascular communication between the ingrafted tail and the surrounding tissues. He, moreover, finds that the tissues which have been subjected to such modifying influences are liable to fall into certain diseased conditions, the progress of which may be traced by killing the animal at different stages. In the prosecution of this research he is still engaged.

He has also succeeded in joining together animals not only of the same but of different species, not only rats to rats, but actually a rat to a cat! He effected this by denuding corresponding parts of their sides, and then uniting by means of sutures the skin of the one animal to that of the other, and tying the two animals together so as to prevent their tearing themselves apart. The practical importance of such researches does not require to be dwelt upon.—From Prof. Rutherford's Report on Physiology in *Journal of Anatomy and Physiology*.

PROSTITUTION IN PARIS.—Prof. Edmund Andrews, of Chicago, in a letter to the *Chicago Medical Examiner*,

comments upon this peculiar phase of Parisian life, viz.:

There are some curious developments of human nature in Parisian licentiousness. The strumpets often have a high opinion of themselves, and are even very pious. Here are specimens of their petitions to the Prefect of Police. One commences thus :

" *Monsieur le Prêfet* :—Being incapable of labor, in consequence of a double hernia, and other grave maladies, it is not for the gratification of my passions, nor from bad habits, that I have for ten years been enrolled in your office (as a prostitute). The testimony from all my neighborhood, Monsieur le Prêfet, will prove to you that I have, to some extent, effaced by my *morality, my decency, and the regularity of my conduct, the degradation of my condition.*"

An old woman, aged 82, applies in the following terms, for permission for her daughter and granddaughter to open a new house of prostitution :

" *Monsieur le Prêfet* :—At the age of 82 years, and the mother of a numerous family, I implore, Monsieur le Prêfet, your aid and protection. You, who are the father of the poor, the support of the widow and the orphan, the stay of the afflicted, and the refuge of the unfortunate, will certainly not refuse my request. At an age so advanced, feeling myself near the time when I must render up my soul to God, and appear before my Creator, it is my duty to provide for my children, and to transmit to them my means of subsistence." Then follows her request for permission to establish a brothel, under charge of her daughter.

Another woman petitions for leave to open a new house, promising the Prefect that she will keep in it only "the most distinguished women," who will attract men of such irreproachable character, that "tranquility, order, faithfulness and healthfulness, will be the inevitable result." Moreover, she declares that the splendor of the house and its furniture will be such that Paris will glory in it.

Another commences her petition as follows :

"*Monsieur le Préfet* :—I have been a registered woman for ten years, and have lived in my own apartments (*fille de chambre*). Feeling bound in honor to preserve intact the reputation of *honesty and delicacy* which I have acquired in my neighborhood, I am forced, in order to fulfill *sacred engagements, and to pay some debts of honor*," etc., etc.

AUTOMATIC COOKERY.—A Norwegian cooking apparatus, exhibited at the Exposition, consists of a wooden box lined with some non-conducting material, and containing a tin vessel, which fits into the stuffed aperture of the box. The stuffed lining is so poor a heat-conductor, that water in the interior tin box only cools down from 212° to 172° F. in seventeen hours. In cooking a piece of beef, the meat is placed in the water in the tin vessel over an ordinary fire, until the water has boiled for five minutes, when the vessel, with its contents, is quickly placed in the isolated apparatus, and left alone for three hours, when the beef is found to be thoroughly boiled. The method of cooking is pronounced the truly philosophic one, the maximum nutritive quality being retained. Economy of fuel and great saving in labor are other recommendations.—*Scientific American*.

VARIATION IN PREPARATIONS OF OPIUM.—Mr. Alfred Southall of Birmingham has examined a number of specimens of tincture of opium and *liquor opii sedativus* purchased indiscriminately from the establishments of various pharmacutists. They show a variation of strength which, if it do not alarm the prescriber for the welfare of his patient—as it is suggested that it may well do—will show to physicians how very variable a weapon such a tincture is. The nine specimens of tincture examined, showed variations of from 0·2 per cent of morphia to 0·7 per cent. ; and, from the proved variations in the generality of good commercial opium, a tincture yielding from half to one per cent. of mor-

phia is within the Pharmacopœia limits. Eight specimens of *liquor opii sedativus* showed variations ranging from 0.2 per cent. to 1.1 per cent. of morphia. The simple remedy lies in the substitution of the principal alkaloid morphia as an internal remedy for this uncertain drug opium.—*British Medical Journal*, Oct. 26, 1867.

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL.—In the number of this Journal for November of the present year it is stated that "experience having fully established that the profession will not adequately support more than one first class medical journal in this city (New Orleans), it has been decided to unite ours with the *Southern Journal of Medical Science*, and by this combination to form one journal." This new journal will be under the editorial management of Drs. S. M. Bemiss and W. S. Mitchell.

OBITUARY RECORD.—It is with deep regret that we record the death, at New Haven, on the 6th of November, of Worthington Hooker, M.D., Professor of the Practice of Medicine in Yale Medical Institution. Dr. Hooker was a scholar of extensive and varied acquirements, a lucid and practised writer, a skilful and judicious physician, and a genial, high-toned, honorable gentleman. For many years he was one of the leading spirits of the American Medical Association, and his reports made to that body on "Demonstrative Midwifery" and on "Medical Specialism," bear testimony to his elevated and just ethical doctrines, and do him credit for the firm stand he took to maintain the honor, dignity, and purity of our profession. He was also a contributor to the *American Journal of the Medical Sciences*, and was just completing a Review for the January number when struck down by his last sickness. The community, no less than his family and friends, have sustained by his death an irreparable loss.

SPONTANEOUS GENERATION.—Experiments on eggs have led Donné to believe in spontaneous generation (*Comptes Rendus*, No. 7, 1866). Although in eggs which have been left to become putrid without the shells having been broken, infusoria never appear, Donné thought that this might be due to the absence of pure air, owing to vitiation of the air contained in the egg by the development of gases due to decomposition. In order to obviate this he pierced the shell while it was closely surrounded by cotton wool, which according to Pouchet entangles all the germs floating in the air, which may be passed through it. After this had been done infusoria always appeared in the egg, and Donné concluded that they had been generated spontaneously. Members of the French Academy doubted that Donné had taken sufficient precaution to prevent the entrance of germs from without. To satisfy these objections Donné threw a jet of boiling water into the opening in the egg in order to kill the germs, (*Ibid.*, No. 25, 1866,) but notwithstanding this the infusoria soon appeared. Pasteur objected to this that a temperature of 212° F., has been found by him insufficient to kill many infusorial germs. In reply to this Donné (*Ibid.*, No. 1, 1867) pierced eggs with a stilette, allowed a little of the albumen to flow out, then filled the empty space with boiling water, and sealed the aperture in the shell; ere long vibriones appeared in the fluid, and Donné concludes that the boiling water must at any rate have killed the germs of *vibriones*, and that consequently they must have been developed spontaneously from the organic matter of the egg.

O'REILLY PRIZE.—Dr. John O'Reilly, of New York, having offered, through the New York Academy of Medicine, a Prize of Six Hundred Dollars for an Essay on the *Physiology and Pathology of the Sympathetic or Ganglionic Nervous System*, the Committee of Award, appointed by the Council of the Academy, have adopted, with the concurrence of the Council, the following Regulations.

I. The competing Essays shall be sent in to the Chairman of

the Committee, Professor J. C. Dalton, M.D., No. 101 East Twenty-third Street, New York, on or before the first day of January, 1869.

II. Each Essay shall be marked with some distinguishing device or motto, and accompanied by a sealed envelope bearing the same device or motto and containing the name and address of the writer.

III. The Essay selected by the Committee shall be transmitted by them, together with its accompanying envelope, to the Council of the New York Academy of Medicine; under whose direction the envelope shall be opened and the name of the writer announced at the second meeting of the Academy in March, 1869.

IV. This Prize is open for universal competition.

V. The Committee have a right to reject whatever does not come up to a proper standard of merit.

JAMES ANDERSON, M.D., Late President of the Academy,
On behalf of the Council.

J. C. DALTON, M.D., Professor of Physiology in the College of Physicians and Surgeons.

A. FLINT, JR., M.D., Professor of Physiology in the Bellevue Hospital Medical College.

ALFRED W. LOOMIS, M.D., Professor of the Institutes and Practice of Medicine in the University Medical College, New York.

Committee of Awards.

NEW YORK, DECEMBER, 1867.

Medical journals are particularly requested to copy.

At a meeting of the Trustees of the College of Physicians and Surgeons in the City of New York, held Nov. 18th, the Registrar having communicated the decease of Robert Watts, M.D., late Professor of Anatomy in the College, on the eighth day of September last, in the city of Paris, the following resolutions were unanimously passed:

RESOLVED—That by the decease of Prof. Watts, the college has sustained a loss of one of its most accomplished and successful teachers, whose untiring zeal and devotedness to its interests have largely contributed to its steadily advancing prosperity. For nearly thirty years Dr. Watts had occupied the chair of anatomy, and taught this most important branch of medical science with acknowledged ability and success, and to the great advantage of the numerous classes of students who have attended upon his instructions.

RESOLVED—That this board not only desire to commemorate the loss sustained by the college, but also to express their deep sense of the excellence of Dr. Watts's character, and the heartfelt sorrow they experience in this bereavement.

RESOLVED—That a copy of these resolutions, duly authenticated by the signatures of the president and registrar, be communicated to the family of the deceased, with the assurance of the sympathy of this board in the affliction they have sustained.

RESOLVED—Furthermore, that these resolutions be published in the medical journals of the city.

EDWARD DELAFIELD,
President.

GURDON BUCK,
Registrar.

BOOKS AND JOURNALS RECEIVED.

- London Lancet. August 24, 31; September 14, 21, 28; Oct. 19, 26; Nov. 2, 9.
 Medical Times and Gazette. August 24, 31; Sept. 14, 21; Oct. 19, 26; Nov. 2, 9.
 Medical Press and Circular. August 28; Sept. 4, 11, 18, 25; Oct. 16, 23, 30;
 Nov. 6, 13.
 British Medical Journal. August 24, 31; Sept. 7, 14; Oct. 19, 26; Nov. 2, 9.
 British and Foreign Medico-Chirurgical Review. October.
 Medical Mirror. October, November, December.
 Edinburgh Medical Journal. October, November.
 Glasgow Medical Journal.
 Dublin Quarterly.
 Journal of Cutaneous Medicine. Vol. 1. No. 3.
 Journal of Anatomy and Physiology. November, 1866; May, Sept. 1867.
 Journal of Mental Science. October.
 Ophthalmic Review. October, 1867.
 American Homœopathist. December.
 American Journal of Dental Science. November, December.
 American Journal of Homœopathic Materia Medica. November.
 American Journal of Pharmacy. November.
 American Literary Gazette and Publishers' Circular. November 1, Dec. 2, 16.
 American Naturalist. November, December.
 Atlanta Medical and Surgical Journal. October, November, December.
 Boston Medical and Surgical Journal. Oct. 3, 10, 17, 24, 31; Nov. 7, 14, 21, 28;
 Dec. 5, 12.
 Boston Journal of Chemistry. November, December.
 Buffalo Medical and Surgical Journal. October, November.
 Canada Medical Journal. October, November.
 Chemical News and Journal of Physical Science. October.
 Chicago Medical Examiner. November, December.
 Chicago Medical Journal. October.
 Dental Cosmos. November, December.
 Detroit Review of Medicine and Pharmacy. October
 Druggist and Chemical Gazette.
 Cincinnati Lancet and Observer. October, November, December.
 Galveston Medical Journal. November.
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NEW YORK MEDICAL JOURNAL:

A MONTHLY RECORD OF
MEDICINE AND THE COLLATERAL SCIENCES.

VOL. VI.] FEBRUARY, 1868. [No. V.

Original Communications.

ART. I.—*Alimentation in Disease.* By AUSTIN FLINT,
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Medicine in the Bellevue Hospital Medical College,
&c., &c.

[Read at the stated meeting of the "Medical Society of the County of New York,"
Jan. 6, 1868.]

CHOMEL, in his admirable treatise on General Pathology, defines the art or the practice of medicine to be the application of good sense to the treatment of diseases. He adds that knowledge of diseases is indispensable, but good sense ranks first in importance. I give the literal translation of the French term, in preference to

the phrase "common sense" which is generally used with us, inasmuch as good sense is rather uncommon than common. This definition by Chomel is not less just than striking. The ablest practitioners in the different departments of medicine have always been those who, in addition to an abundance of knowledge, possessed in an uncommon degree good sense. This is as true now as hitherto. How often do practitioners, by no means deficient in medical knowledge, fail in practice because they lack good sense! and, on the other hand, good sense often compensates to a considerable extent for deficiency in medical knowledge. The great improvement which has taken place within the last quarter of a century in the practice of medicine, as regards the employment of remedies, and, still more, the hygienic management of diseases, is due not less to the agency of good sense than to pathological researches. Good sense restrains the formation or adoption of baseless speculations and immature doctrines; it prevents one-sided and extreme views; it opposes alike presumptuous innovations and bigoted conservatism; it keeps within proper bounds reliance upon others and self-reliance, discouraging equally blind partisanship and dogmatic egotism; and, finally, good sense is the true genius of medical experience. With these preliminary remarks I proceed to submit to the good sense of those whom I address some considerations relating to an important subject in practical medicine, namely, *Alimentation in Disease*.

As conducive to a proper appreciation of the importance of alimentation in disease, the natural history of

starvation is to be considered. The immediate effects of starvation are, of course, most rapidly produced and most strikingly manifested when all aliment is withheld. The blood is notably diminished and impoverished; emaciation is rapidly progressive, and death, according to the painful experiments of Chossat on inferior animals, takes place when the body has lost one fifth or one fourth of its weight in health. The more obvious phenomena attendant on these immediate effects are as follows: Febrile movement frequently occurs, although the temperature of the body is greatly reduced before death; muscular debility is speedily a marked symptom, and is soon followed by great prostration; the circulation is more and more enfeebled; there is inability to sleep; the moral sentiments are perverted, and, after a time, there is delirium which is sometimes active and sometimes passive; diarrhœa often occurs, and the breath becomes intolerably fœtid. The average duration of life, the complete deprivation of aliment being understood to include water, varies from five to eight days. The mode of dying is typical of slow asthenia or exhaustion. The phenomena are essentially the same, but the duration of life is considerably longer, if water be not withheld.

The phenomena of starvation are not confined to cases in which there is complete deprivation of aliment. This is a fact highly important in its bearing upon alimentation in disease. Starvation is produced whenever the aliment is insufficient, either as regards quantity or quality, for repairing the losses which the blood sustains in supplying to the solids materials for nutrition. The

phenomena of starvation are essentially the same as when all nourishment is withheld; the only difference being that they are developed more or less slowly, they are consequently less striking, and their connection with deficient alimentation is liable to be overlooked. Another fact relating to starvation also has an important bearing on alimentation in disease—certain portions of the body may suffer from the want of materials in the blood proper for their nutrition, while other portions of the body are sufficiently nourished. To quote the language of the author of an able essay on "Army Alimentation:" "Starvation is a comparative phrase. We can starve muscle by withholding nitrogen. We can starve the fats of the body, and destroy the animal heat, by withholding carbon. So, too, we can starve the brain by withholding phosphorus; and starve the blood by failing to supply it with those salts of lime, potash, soda, iron and magnesia, which are essential to its healthy condition."*

Recognizing the fact that the term starvation comprehends all degrees of innutrition between the extreme degree produced by the deprivation of all aliment, and the opposite extreme caused by a slight diminution of the alimentary supplies requisite for the wants of the body; and, also, that certain parts may be starved while other parts are amply nourished, I proceed to state another fact, the practical bearing of which on alimentation in disease will be at once apparent. Starvation

* Dr. S. B. Hunt, *vide* Sanitary Memoirs of the War of the Rebellion, Vol. i, of the series published by the U. S. Sanitary Commission.

may be produced in persons affected with different diseases, as well as in healthy persons. There is nothing in disease to prevent starvation or its immediate effects. Starvation is sure to occur in cases of disease, in a degree proportionate to the lack of material for nutrition in the blood; in other words, in proportion as the requisite amount of aliment is either not ingested or not assimilated. The immediate effects and the attendant phenomena are the same when starvation occurs in connection with disease, as when it is produced in persons previously in health. Impoverishment of the blood, emaciation, febrile movement followed by a reduction of the animal temperature, feebleness of the circulation, vigilance, perversion of the moral sentiments, delirium, diarrhoea, and fœtor of the breath—may be attributable, in cases of disease, to starvation. In connection with all diseases, more or less of the morbid phenomena present arise from starvation, and these phenomena are prominent and grave in proportion to the degree in which either alimentation or assimilation is defective. Chossat has enunciated truths in language which enforces their importance, when he says, "Starvation is a cause of death, marching silently in front with every disease in which alimentation falls below the natural standard. It reaches its natural termination sometimes sooner and sometimes later than the disease which it covertly accompanies; and it may supersede the disease of which, at first, it was merely an incidental element." Starvation is often the immediate cause of death, when diseases destroy life by slow asthenia or exhaustion. If a fatal termination be not due to a direct interference

with the action of the heart, or with respiration, it is correct to say, that patients die because they are starved to death. Certain it is that diseases which do not compromise directly the function of either the heart or lungs, cannot kill so long as the nutrition of the body is maintained at a point compatible with life. Starvation, associated with disease, may be inevitable; that is, the disease may involve an insuperable obstacle to either the ingestion of aliment, or its assimilation. Then it is that, in the language of Chossat, inanition may reach its termination sooner than the disease. On the other hand—and here is a fact full of practical import—starvation may not be a necessary effect of the existing disease, but may be due to insufficient alimentation. In such cases, inanition may prove a cause of death when the disease need not have destroyed life; the patient, indeed, may die of starvation notwithstanding the progress of the disease *per se* be favorable. Then, in the language of Chossat, inanition “reaches its natural termination later than the disease which it covertly accompanies, and it may supersede the disease of which, at first, it was merely an incidental element.”

On these facts pertaining to starvation, rest the practical considerations relative to alimentation in disease, which I shall now proceed to submit.

A logical inference from these facts is, that to prevent starvation is of fundamental importance in the practice of medicine. The importance of this object in the treatment of individual cases of disease, is to be estimated by the amount of impending danger from starvation as an incidental element. All who hear me

are doubtless familiar with the teachings of Graves, with respect to alimentation in the continued fevers. Graves states that he was first led to appreciate the importance of giving nutritious food in cases of fever, by the remark of a shrewd country practitioner, who said that, in his practice, patients generally recovered if he could prevent them from being starved to death. Graves inaugurated a great reform in the treatment of fevers as regards alimentation; and as proof of the strong conviction in the mind of this distinguished clinical teacher of the improvement in practice which dates from his publications, he is said by his co-worker Stokes to have declared that he could desire no better epitaph than, "He fed fevers!" Few, if any, practitioners at the present day, are disposed to undervalue the importance of alimentation in the essential fevers; but it is not less important to prevent, if possible, death from starvation in all other diseases. If to die by slow asthenia be often virtually to starve to death, then, no matter what the disease may be, it is an object of fundamental importance to promote, as far as practicable, the assimilation of food. Looking at the object of treatment in another point of view, it is customary to say that the powers of life are to be supported in proportion to the danger of death by asthenia, whatever be the nature or seat of the disease. Now, of supporting measures, alimentation holds the front rank, not deprecating the importance of stimulants, especially alcoholics, which it is foreign to my present purpose to discuss.

Admitting the fundamental importance of alimenta-

tion in the treatment of diseases, the inquiry arises, what are its limitations? In answer to this inquiry, it is to be stated, that, if we except the early stage of some acute diseases in which it may be an object to withhold aliment with an indirect reference to depletion, there is never any risk of hyper-nutrition. With the exception just stated, I submit the proposition that it is always desirable, in cases of disease, to supply aliment to the fullest extent of the capacity of the organism for appropriation. In acute diseases the failure of the vital powers is forestalled in proportion as nutritive supplies are assimilated. This is simply saying that the assimilation of nourishment is indispensable for the preservation of the powers of life. And then, in the progress of an acute disease, more or less failure of the vital powers ensues, the more nutrition can be maintained, the more efficient the support. The proposition just submitted embraces not only the acute but the chronic diseases. No matter what may be the seat or the nature of the chronic affection, a diet fully up to the capacity of the organism for nutrition promotes recovery, if recovery be possible, and if recovery be not possible, by increasing the ability of the system to endure the affection, contributes to prolong life. The limitations to alimentation, therefore, relate wholly to the physiological processes which are preliminary to nutrition, namely, digestion and the other processes by which aliment is converted into blood. If more food be ingested than the digestive organs can prepare for assimilation, or if the articles of diet be not suited to the digestive powers, the nutrition will not be in pro-

portion to the alimentation, and disorder of the digestive organs may be produced. This is, of course, if possible, to be avoided ; yet, the harm resulting from over-alimentation is generally exaggerated. Undigested aliment often passes through the alimentary canal without causing any appreciable disturbance. The disorder which may be produced is due chiefly to chemical changes in the ingesta, and is manifested by flatulence, pain, and looseness of the bowels. Conservatism is seen here as in other morbid effects. As the result, the offending matter is expelled, and the harm is, in general, not more than that caused by a cathartic or laxative. It is quite superfluous to say that to avoid over-alimentation may be highly desirable, but it is sometimes safer to incur risk in that direction, than to limit alimentation below the ability of the digestive powers and the capacity of the organism for nutrition. What rules are to govern the practitioner in so regulating alimentation in disease as to avoid the evils, on the one hand, of starvation, and, on the other hand, of disorder of the digestive organs ? To treat of the numerous topics which this question opens up, is impossible within the limits of a brief discourse. In the few moments remaining of the time to which I have restricted myself, I can only submit, without discussion, some of the considerations suggested by the question. An unwillingness to presume upon the patience of my auditory must be my apology for offering statements open to criticism on the score of their having the character of aphoristic propositions.

As the first in rank of supporting measures in the

management of the essential fevers and all acute diseases which endanger life by asthenia, it is often necessary to regulate alimentation without regard to indications afforded by appetite or taste. In many cases of disease, owing to bluntness or perversion of the mental perception, the wants of the system as regards nutrition are not indicated by a desire for food, or by choice in its selection and preparation. Patients not infrequently die of starvation without having experienced any sense of hunger. Under such circumstances, the rule is to supply, not only as much aliment as the digestive organs can prepare for assimilation, but food containing, in proper amounts, all the alimentary principles required to repair the waste of the different parts of the organism. Limiting alimentation to an article of food inadequate as regards the different alimentary principles which it contains, will not prevent starvation, no matter how abundantly the article is ingested. For example, patients may be starved to death on the juice or a decoction of beef given without stint and digested. The risk of starvation is much greater if the diet be restricted to substances less nutritious, such as gelatine, albumen, starch, or gum. The valuable experiments of Hammond and others have established the fact that the last three of these alimentary principles, namely, albumen, starch, and gum, singly, are wholly inadequate to nutrition; and the inadequateness of gelatine was long ago settled by the famous Gelatine Commission in Paris. Under the circumstances stated, the diet should not only embrace the requisite variety of alimentary principles, but food must be given in a concentrated and liquid

form. Milk, *par excellence*, has these recommendations, and is, therefore, of all articles of diet, in fevers and other acute diseases, to be preferred. The alimentation is rendered more effective by the addition to milk of a farinaceous substance, and by alternation with animal broths, or the essence of meat. Eggs, also, form an excellent article of supporting diet, owing to the fact that they contain the requisite variety of alimentary principles combined by the hand of nature. Whenever alimentation is a measure of support, that is, whenever there is danger, either immediate or remote, from starvation, an important rule is to allow always, after food has been given, a sufficient period to judge whether or not it produces disorder of the digestive organs. The intervals should be from three to four hours. If food be given every hour or half hour, as is often done, the organs of digestion have no period of rest, and it is impossible to form any judgment concerning the digestive powers. Moreover, after intervals sufficient to allow of rest, food is more likely to be digested. A grave objection to giving food after very short intervals, is that it involves interference with sleep and occasions both physical and mental annoyance. By allowing sufficient intervals the quantity of food may be graduated to the digestive powers, and thus disorder from over-alimentation avoided.

An important rule of alimentation in fevers and acute diseases, relates to variation in the articles of diet and in the preparation of food. Any article, prepared in a certain mode, and given, without change, day after day, becomes, after a short time, offensive and disgust-

ing. The patient takes it, not merely with indifference or against inclination, but with strong aversion ; and this is an evil, not alone on the score of difficulty and annoyance in giving nourishment, but because, under these circumstances, the digestive organs, as well as the palate, rebel against it. Variations may be made by giving, on successive days, the decoction or juice of different kinds of meat ; by adding to milk different farinaceous substances, and by different modes of preparation. This rule, like most other dietetic rules, will not be carried out unless the practitioner be precise and enter into minute details in his directions concerning alimentation. Persons upon whom devolves the nursing of the sick, often attach little importance to the diet ; they are apt to imagine that everything depends on remedies. The physician not infrequently meets with opposition to his measures of alimentation, arising from a prejudice against feeding patients. It has been a popular notion that starvation, so far from being the mode in which diseases are apt to kill, is a means of cure. Like other popular notions concerning diseases, this doubtless was derived from the medical profession. It is but a short time since the *cura famis* was relied upon in the treatment of most of the acute and many of the chronic diseases. Notions thus derived are often retained in the popular mind long after they have been abandoned by the profession. The introduction by enema of aliment, when it is not retained by the stomach, is often highly important.

Whenever patients desire certain articles of food, as a rule, these are to be allowed. Such a desire, if dis-

tinct, represents generally a want of nutrition, more reliable than the judgment of the physician as to the articles best suited to the case. Every one has heard of instances in which patients have craved articles of food considered as extremely inappropriate, but the cravings being indulged, perhaps without the sanction of the physician, marked improvement immediately followed. Remarkable instances of this kind are undoubtedly authentic, and they are striking illustrations of the soundness of the rule just stated. This rule is in conflict with a popular notion, for the origin of which the profession is doubtless responsible, namely, that in cases of disease the instinctive desires are morbid, and are to be opposed rather than indulged.

Alimentation, as a measure of support, is more important in cases of disease affecting the young and the aged, than during the intervening periods of life. This is consistent with the fact that starvation kills children and old persons more quickly than those who have attained to full development and who are not in advanced years. Of the 150 persons who, after the wreck of the frigate *Medusa*, were exposed on a raft for thirteen days, with hardly any food, children, young persons, and the aged, were the first to die from starvation.*

During convalescence from fevers and other acute diseases, the ordinary articles of solid food should be allowed, as soon as they are desired. Convalescence is protracted by the continuance of a liquid diet, and by

* *Physiology of Man*, by A. Flint, Jr., vol. ii, page 16.

an insufficient alimentation. The kinds of food may, in general, be safely left to the choice of the patient, and the quantity is to be graduated by the activity of the digestive powers and of nutrition. The risk of over-alimentation during this period is often exaggerated; and, with reference to alimentation, as well as to other measures, it is to be considered that after many diseases, for examples, the continued fevers and pneumonia, the liability to relapse is exceedingly small.

In the management of chronic diseases, measures aside from alimentation, whether medicinal or hygienic, are serviceable in proportion as they contribute to digestion and nutrition. Whatever be the nature of the chronic disease, or wherever it be seated, it is always an object of fundamental importance to keep nutrition as near as possible to the standard of health. The rules of alimentation, therefore, in cases of chronic disease relate to the most efficient means of effecting this object.

Medicines not infrequently impair the appetite and interfere with digestion. If not required for a special curative effect, they are then likely to do harm by compromising, more or less, alimentation and nutrition. Hence in fulfilling therapeutical indications, an important rule is to select remedies or pharmaceutical preparations which are not offensive either to the palate or the stomach. In prescribing remedies, allowance is always to be made for the wide difference among different persons as regards the gustatory and gastric sensitiveness to medicines. The over-drugging which formerly prevailed was in no small degree objectionable

on account of its effects on appetite and digestion, aside from other effects. In this aspect the use of drugs with far more discrimination and reserve now than formerly, is a great improvement; so, also, is the use of concentrated remedies, the preparation of medicines in agreeable forms, and the hypodermic administration of certain articles.

Efficient alimentation in cases of chronic disease is often impeded by prevalent popular errors. The notion that starvation is a means of cure, to which allusion has already been made, operates largely against an analeptic diet. Another popular notion is that the restriction of diet to a very few articles, and to the same articles continuously, is desirable; whereas, nothing is more certain than that a varied diet is most conducive to digestion and nutrition. As results of these errors it is not uncommon for persons with some chronic ailment, and even healthy persons, not only to become feeble and anæmic, but to suffer, more or less, from the blood-changes which are embraced under the name scorbutus. Chronic affections are in this way protracted, the ability of the system to bear them is impaired, and serious ailments are thereby superadded. Other absurd popular errors relate to supposed individual peculiarities. Many persons seem to be pleased with the idea that articles of diet which are wholesome for mankind in general, are pernicious to them. Practitioners daily meet with cases illustrating this strange manifestation of egotism. How often do we hear the trite saying that "what is one man's meat is another man's poison," a maxim which has very little foundation in truth. I suppose every

one present has often met with objections to milk and eggs, which, as representing all the constituents of the organism, may be called the typical foods, on the ground that they are apt to promote biliousness! It will be a great gain, as regards alimentation in chronic diseases, when these and other errors of the same sort, are completely eradicated from the popular mind.

It is highly important to consider the influence of the mind on appetite and digestion, and thereby on assimilation and nutrition. Not a small number of the disorders referable to impoverishment of the blood and innutrition are traceable to mental depression, which sustains to various disorders the relation of both cause and effect. Hence, in great part, the advantage, in many cases, of change of scene and new associations, the benefit being derived through the mind. Hence, the greater success of those physicians who take proper cognizance of the mental condition, in these cases, as compared with those whose professional offices are limited chiefly to prescribing drugs. Hence, too, the marvellous effect often of judicious encouragement, on the part of the physician, for mental depression in many cases relates to apprehensions which are either groundless or greatly exaggerated. The influence of the mind upon digestion is strikingly shown when, unhappily, patients have fallen into the habit of concentrating the attention upon the sensations which follow the ingestion of different articles of diet. If food be taken with distrust and anxiety lest it prove hurtful, the chances are it will give more or less trouble; and if

taken with a pre-conviction that it will do harm, this result will be pretty sure to follow.

Having reached the end of the time which I resolved, on commencing to write, that I would not exceed, I must leave untouched many of the topics which suggest themselves in contemplating the subject of this discourse. The few and somewhat desultory considerations which have been submitted, relate entirely to alimentation when disease exists. A kindred subject is alimentation in health, considered with reference to the prevention of disease, to the development and growth of the organism, and to mental and physical vigor. The latter is a subject large in extent and of vast importance. With regard to this subject, as well as to alimentation in disease, notwithstanding the knowledge acquired and the improvements made within late years, there is yet abundant scope for further information and progressive practical progress.

My remarks have had reference, almost exclusively, to one aspect of the subject, namely, the danger from defective alimentation, or starvation. The evil consequences of excessive and improper alimentation, both in health and disease, enter into another aspect of the subject. Considered in the latter aspect, the subject is one of magnitude and importance. Unquestionably, the evil consequences of excessive and improper alimentation are not always sufficiently appreciated by all members of the medical profession; and, with the well-known tendency in the doctrines and practice of medicine to opposite extremes, a full apprehension of the danger of defective alimentation is doubtless liable to

be followed by error in an opposite direction. Under the necessity, however, of limiting the scope of my remarks, of the two aspects of the subject I have confined myself, for the most part, to the one which, at the present time, as regards the occasion for suggestive considerations, seems to me relatively the more important.

ART. II.—*Cases and Observations relating to the Science of Toxicology and Pathological Anatomy.* By JOHN A. LIDELL, M.D., New York.

THE following cases, when considered from a medico-legal point of view, appear to possess sufficient interest, especially for the student of toxicology, to endow them with a permanent value. They are also not devoid of interest for the student of general pathology. The writer has therefore deemed it advisable to copy their histories from his note-book, and present them for publication.

CASE I.—*Acute Poisoning by Alcohol; Death in twelve hours; Autopsy.*—Joseph White, a little boy, *æt.* 6½ years, in good health, drank several glasses of brandy at the instigation of a man named Keneday, who was on a spree, on the afternoon of April 22d. The precise number of drinks administered to him is not known, but it is certain that the quantity was very large for so young a subject. Soon afterwards he was seen staggering along the streets, still accompanied by the man; and, a little while after this, he was carried home by the neighbors in a state of profound intoxication. His parents, supposing that sleep would do him good, placed him in bed, and left him without further care. Late in the evening, however, their attention was at-

tracted by a peculiarity in his breathing, and on attempting to rouse him they found it impossible. The family physician was then summoned, and visited him about midnight, before which time no physician had seen him. The doctor informs me that the patient was comatose when he saw him; that he lay entirely unconscious of everything going on about him; that his face was pale, his pupils widely dilated and insensible to light, his respiration stertorous, his body cool, his extremities cold, his pulse very frequent and feeble, and that his breath exhibited an alcoholic odor. After this he continued to sink gradually, his pulse became more frequent and feeble, his throat and chest became filled with rattles, his breathing grew shorter and more difficult, his body became cold, and he died at 4 o'clock a. m. The treatment consisted in the application of dry heat to his trunk and extremities, and counter-irritation by means of sinapisms applied to his chest, thighs, legs and feet. No remedies were administered internally, because he was so far gone that he could not swallow when the doctor saw him.

Autopsy, by the writer, 12 hours after death.—Surface of body generally pale; rigor mortis slight. Brain congested. The sinuses of the dura mater and the veins of the pia mater were tinged with fluid blood of a dark color. The substance of the brain was remarkably firm in consistence, but unchanged in color. The puncta vasculosa were unusually numerous and distinct. Some of the blood which escaped from the divided cerebral vessels happened to collect in the occipital fossæ, and in the basin formed by the skull-cap, that chanced after it was sawn off to be placed beneath the head. This blood, after standing for some time, coagulated feebly, and became changed to clots of a soft consistence. The ventricles of the brain contained about a small spoonful of pale serum, and there was but very little sub-arachnoidean effusion, even at the vertex. Much blood escaped while removing the brain. Lungs, liver, and kidneys congested, i. e., they contained more than the

normal quantity of blood, but in other respects these organs were sound. The spleen also was congested and enlarged. On incising it and making moderate pressure, blood escaped freely from the cut surface. Heart natural; but the blood contained in it and the great vessels connected therewith was either entirely fluid or coagulated to but small extent. Only two small white fibrinous coagula were found, one in the right auricle and the other in the right ventricle. Stomach distended with gas. Externally its color and general appearance were natural. On laying it open about an ounce of yellowish viscid fluid (bile) was found. The mucous membrane of the middle third of the organ, and that belonging to the folds generally, had a dull red color. The whole interior was thickly coated over with viscid mucus, which, in some parts, presented a glairy appearance. The gastric mucous membrane was neither thickened nor softened. Intestines natural. Bladder distended with pale watery urine, but its coats were healthy. No odor of alcohol was detected in the stomach or any other part.

Comments.—It sometimes happens, as in the case just related, that a person dies suddenly from drinking a large quantity of spirituous liquor, and such person is said to be *poisoned* by the alcohol contained in the liquor. The poisoning is termed acute, because of the brief space of time that elapses between the ingestion of the poison and the fatal termination. There are cases upon record in which death took place in less than half an hour. But the average period which elapses between the introduction of the poison into the stomach and the fatal termination, is stated to be from twelve to eighteen hours. In this case, the subject lived about twelve hours.

With regard to the quantity of ardent spirits required to produce death, so far as I know, the smallest quan-

tity which has produced that result in the human subject is three ounces of brandy, taken by a boy seven years old. This case is referred to by Mr. Alfred Taylor.

With regard to the morbid appearances revealed by dissection, the following are the principal important points: 1st, the congested condition of the brain, lungs, liver, spleen and kidneys; 2d, the catarrhal state of the mucous membrane of the stomach, denoted by its reddened hue, and the presence of a large quantity of mucus spread over its surface; 3d, the fluid condition of the blood, and the diminished coagulability thereof; 4th, the hardening of the substance of the brain, occasioned probably by the action of the alcohol thereon.

Percy's experiments have shown that alcohol is absorbed from the stomach, unchanged, and with great rapidity, into the blood; that mingled with the blood-currents it is carried into every part of the body; and that it has a very strong affinity for the brain—stronger, indeed, than for any other part of the body.

CASE II.—*Suicide by inhaling Chloroform: Autopsy.*—A German woman, æt. 22, married, and residing at 22 Spruce Street, had for some time been in the habit of administering to herself chloroform for the relief of a distressing toothache. She adopted the practice, in the first instance, by the advice of a dentist, as I was informed, who also cautioned her with regard to the great danger attending its use. About 8 o'clock, p. m., July 24th, she was found lying on a sofa in her own room, dead, with a pocket handkerchief, still wet with chloroform, lying over her mouth and nostrils. It is said that she lived very unhappily with her husband, and that they had a violent quarrel a short time before she

was found dead; after which she appeared very much excited, threatening to destroy herself, and was not seen again alive.

Autopsy, eighteen hours after death.—Countenance, lips, and whole surface of body very pale (her complexion was florid during life); expression of countenance, that of quiet slumber; eyes closed, and pupils natural; body, that of a very beautifully formed young woman. Lungs much congested with venous blood, otherwise healthy. Heart sound, except that its muscular tissue was rather more flabby than usual. The blood in the cavities of the heart, great vessels, etc., was entirely fluid, (i. e., it exhibited no clots.) The right side of the heart and the large veins were full of blood. Liver and spleen strongly congested (venous.) The mucous membrane of the stomach, intestines, and kidneys, was much congested; it was extensively reddened, but exhibited none of the products of inflammation. The congestion appeared to be of a passive character everywhere. The brain and the mucous membrane of the organs of generation were not examined.

The principal morbid phenomena revealed by the autopsy were: 1st, the fluid condition of the blood, which is the more worthy of note because the subject was cut off suddenly in the vigor of robust health; and 2d, the general venous congestion, which was more strongly marked in the mucous than in any other tissue. The presumption is that the stagnation of the blood, above-mentioned, commenced in the lungs, and was primarily occasioned by paralysis of the par vagum, (i. e., arrest of the nerve-force transmitted by it,) aided perhaps by the imperfect decarbonization of the blood, consequent upon the presence of chloroform in a gaseous state, in the place of atmospheric air, in the pul-

monary cells. The pulmonic circulation being thus obstructed and dammed up, the pulmonary artery, the right side of the heart, and the whole nervous system, became surcharged with blood.

CASE III.—Suicide by taking Hydrocyanic Acid; Autopsy.—A gentleman, æt. about 40, took his own life on the morning of October 17th. About 9 o'clock on that morning he was found lying on his back, on the outside of his bed, having on all his clothes except the coat, and quite dead. But a few minutes previously he had been seen alive. His friends had suspected his mind to be unsound for some time, though he attended to business daily up to his decease.

Autopsy, five hours after death.—Whole surface of body very pale; expression of countenance that of quiet slumber; eyes open, brilliant, and their pupils widely dilated; rigor mortis already present. On opening the cavity of the abdomen the odor of prussic acid was plainly perceived. On opening cavity of thorax the same odor was faintly perceived. The blood in the heart, *venæ cavæ*, and throughout the body generally, was fluid; and no trace of a coagulum was found. The lungs did not exhibit any morbid appearance except old pleuritic adhesions on both sides. The stomach was empty and contracted, and its mucous membrane thrown into folds. A strong odor of hydrocyanic acid was perceived on opening this organ. The mucous surface of its folds had everywhere a deep and bright red color. The mucous surface between the folds had a pale rosy hue throughout the organ. The mucous membrane was also somewhat softened in every part of the stomach. No other morbid appearance was noted. No change in the color of the blood was observed.

The quantity of the poison taken is believed to have been two ounces of medicinal hydrocyanic acid, U. S. Ph. A two-ounce vial labelled to that effect stood,

uncorked and empty, on a table at the head of his bed. It is also believed that death was not instantaneously produced. After drinking the poison he had placed the empty vial on the table, and then lying down upon the bed had straightened himself out upon his back and composed his person as if for sleep; for the body was found in that position after death. Now, all these preparations for a decent exodus from life would occupy at least a few instants of time. The appearance of the cadaver, and the unrumpled condition of the bed, denoted that no convulsive movements had occurred.

CASE IV.—Suffocation by Gases from Burning Coals (anthracite and charcoal combined); Autopsy.—Jane M., servant, æt. 14, always healthy, was found on the morning of April 30, lying in bed, in her room, in a state of complete insensibility, and in fact in a dying condition. The respiratory movements had ceased, but the contraction of the heart could still be faintly perceived, and a feeble pulsation in the temporal artery. Efforts were made to restore her, but without success. Her room was filled with gas generated by a fire which she had made over night in a stove, not knowing that the flue was obstructed. The fuel was charcoal and anthracite.

Autopsy, twelve hours after death.—Rigor mortis well marked; embonpoint preserved; surface of body pale; lips red; mouth open, and colorless froth exuding from it. Each pleural cavity contains more than half a pint of bloody serum. The lungs did not collapse on opening thorax. The anterior margin of each exhibits several dark-colored spots (lobules) resembling the atelectasis of infants. They are depressed below and deeper in color than the surrounding surface, but their pulmonary vesicles are not completely collapsed, for they still contain some air and exhibit some crepita-

tion. The lungs do not contain more than the normal quantity of blood. The bronchial mucous membrane is uniformly red in color, but exhibits no other morbid appearance. Heart natural. The blood contained in the heart and great vessels was fluid, thin and cherry-colored. I nowhere found a clot. Stomach distended with gas, and contains some partially-digested food. Liver, spleen, kidneys, intestines, and uterus natural. Head not examined.

The lungs were found not gorged with blood at the autopsy because, in all probability, it had been transuded from them into the pleural cavities; and this opinion is strengthened by the remarkable fluidity and cherry color of the post-mortem blood.

CASE V.—The following case, in so far at least as the lesions discovered on making a post mortem examination are concerned, presents considerable resemblance to the one last related, and on that account is introduced in this place. Jane Schuister, a well-made and healthy girl, æt. 16, after laboring all day much harder than usual, retired to rest on the evening of March 29, complaining of headache and some other trifling symptoms, of which but little notice was taken. About 5 o'clock on the following morning it was discovered that she was dead. She lay in bed as if asleep. She had not made any noise nor attracted attention to herself in any way during the night. She slept with her mother in a very small room where a fire of stone coal had been burning all day, and continued to burn in the evening after they went to bed. The draft of the chimney was bad, and caused the air of the room to become strongly impregnated with the fumes of burning coal.

Autopsy, about eight hours after death (estimated).—Rigor mortis strong. Transparent, frothy liquid was oozing from the mouth. The air passages were full of colorless frothy liquid. The bronchial mucous membrane was reddened in patches. The right lung was intensely congested, being much increased in volume

and weight, and on cutting into any part of it, an abundant quantity of liquid, mostly tinged with blood and mixed with bubbles of air, was poured out. The pulmonary tissue seemed to be soaked with bloody serum throughout the organ. In the posterior part crepitation was nearly abolished, but not completely in any part (hypostatic congestion). Hepatization was nowhere present. There was considerable bloody serum in the right pleural cavity, which had probably been extravasated from the lung after death. There was a smaller quantity of bloody serum in the left pleural cavity. The left lung was in the same condition as the right, except it was not congested in so high a degree. The heart was healthy. The stomach contained about half a pint of partially digested food. The liver, spleen, kidneys, and intestines, were sound. The head was not examined. The blood was fluid. No heart-clots or other coagula were found.

If in this case death was occasioned by the fumes of the burning coal, why was not the mother's life also destroyed at the same time? It should, however, be stated that the mother, according to her own account, was nearly suffocated when she wakened at 5 o'clock a. m., and found her daughter dead. Furthermore, it is possible that the mother had a greater capacity of resisting the gaseous poison than the daughter. Be this as it may, to what other cause can the sudden death of this young woman, while in robust health, be ascribed, besides the poisonous air of the room where she slept?

CASE VI.—*Acute Poisoning produced by the Foul Air of a Privy-vault; Death; Autopsy.*—On the 23d day of June the writer made a post-mortem examination of the body of a middle-aged German, a night scavenger, who had lost his life about ten hours previously by inhaling the foul gases generated in the vault of a privy

into which he had descended in the pursuit of his calling. He did not die in said vault, but was taken out by his comrades in an insensible condition, and expired in from twenty minutes to half an hour afterwards. There was no tendency whatever towards reaction. Another scavenger suffered so severely at the same place and time from the same cause, that he was taken to the New York Hospital in an insensible state, where he died in about two hours. It was said that a lighted candle went out on being lowered into the fatal vault. The autopsy was made at the Fourth Ward Station House, and developed the following morbid appearances:

A considerable quantity of frothy sero-sanguineous liquid was oozing from the mouth and nostrils of the cadaver. Both lungs were intensely congested; they did not collapse when the cavity of the thorax was opened; their weight was increased as well as their volume. On incising any part of the lungs a frothy sero-sanguineous liquid followed the knife, in considerable quantity. The pulmonary tissue crepitated under pressure throughout. The air passages were full of frothy sero-sanguineous liquid, resembling that issuing from the mouth. The mucous membrane lining the air passages was discolored with a reddish stain. The right side of the heart, the *venæ cavæ*, and the venous system generally, were full of dark-colored blood, which was fluid everywhere, and no coagula whatever were found. The liver, spleen, stomach, intestines, kidneys, etc., were natural, with the exception of a considerable amount of venous congestion, resulting, apparently, from the stagnation of the blood in the lungs.

This case, wherein death did not occur till the lapse of nearly half an hour after exposure, together with that of the other scavenger who was taken out of the same privy and carried insensible to the New York Hospital, where he died two hours afterwards, show

pretty conclusively that the foul air of privy vaults is more destructive to life than carbonic acid, for if said air had been impregnated with that deleterious agent, and no other, either one or both of them would probably have recovered on being withdrawn from it.

ART. III.—*On the Permanent Cure of Stricture of the Urethra by the Galvanic Caутery.* By ROBERT D. NESMITH, M.D., New York.

I desire to call the attention of the profession to a new operation for the permanent destruction of stricture of the urethra. The authors of this ingenious application of the analytic powers of electricity are Dr. F. Mallez and Dr. A. Tripier, of Paris; the former of whom has made his name familiar to all students of diseases of the genito-urinary organs, while the latter is scarcely less favorably known for his works upon Hygiene, and the application of electricity to medicine.

The information which I here present is derived, in great part, from a pamphlet recently published by Drs. Mallez and Tripier, and kindly sent me by Dr. Mallez.* I propose to give a brief summary of what had been done in this direction previous to the invention of MM. Mallez and Tripier, to describe their operations, and to quote some cases out of the many which they publish.

Although as far back as 1841 Crusell, of St. Petersburg, had communicated to the Academies of Sciences

* De la Guérison durable les Rétrécissements de l'Urèthre par la Galvanocaustique Chimique. Mayer-Odin, Paris, 1867.

of St. Petersburg and Paris several papers upon the *electrolytic* treatment of certain engorgements and tumors, it is evident that he had but a vague and ill-defined idea of the physical results of his operation, which was limited to the resolution by the negative pole of a battery, without the production of eschars, of certain engorgements, as of the urethra and eustachian tube.

The credit of having purely comprehended the powers and possibilities of the galvano-chemical cautery—an awkward term, but one which best describes the thing itself—appears to be due to Ciniselli, of Cremona, who has so shaped and systematised the process as to leave no room for doubt as to the nature and extent of the services which it can render.*

When a body of imperfect conducting power, the cohesion of whose particles is not so intimate as to prevent decomposition, is placed in the circuit of a battery, that body is decomposed; the acid goes to the free extremity of the positive electrode, the alkali to the free extremity of the negative electrode. When the electrodes are unattackable, and the interposed body is made of organic matter, the acid and alkalies thus set free act upon the tissues as potential cauteries, determining the production of eschars exactly limited to the points of contact of the electrodes. As this phenomenon of decomposition occurs equally with living and with inanimate organisms, we thus have the means of effect-

* Dell' Azione Chimica dell' Elettricità sopra i Tessuti Organici Viventi, e delle sue Applicazione alla Terapeutica. Cremona, 1852.

ing, without the intervention of heat, cauterizations entirely similar to those determined by the action of acids or of alkalis, and also of controlling their activity by limiting the quantity and tension of the current employed.

Such are the physical facts deduced from Ciniselli's experiments, and any description of the galvano-chemical cautery which failed to recognize the importance of his researches, would do a great injustice to a truly scientific observer. But the full appreciation of the surgical value of these researches must be credited to another name. Dr. Tripier relates, in a communication published in the *Archives Générales de Médecine*, January, 1866, that during his service as *externe* in the Children's Hospital of Paris, where certain scrofulous affections were treated by the application of caustics in every form, he was struck by the difference presented by the cicatrices. Some were soft and flat, or even depressed; others were hard, and often projecting above the free surface.

Investigation proved that the former class of cicatrices was produced by alkaline, the latter by acid, caustics. Finally, after a long series of experiments, instituted expressly to determine the influence exercised upon the cicatrix by the chemical origin of the lesion, Dr. Tripier concluded that chemical caustics gave rise to two species of cicatrices; that the alkaline caustics produce soft cicatrices, of little or no retractility; that the acid caustics produce hard and strongly retractile cicatrices; that the negative pole of the galvanic pile gives cicatrices similar to those produced by the alkaline caus-

tics; finally, that the actual cautery gives cicatrices similar to those produced by acids.

As to the idea of acting upon the urethra by galvanism, Crusell, and after him, Wertheimber, had already thought of that, and it might not improbably have led them to the destruction of strictures had their method been at all clearly defined. They simply undertook, however, to utilize the resolvent action of the negative electrode to disperse peri-urethral engorgements, to which they attributed an active part in the production of strictures. Moreover, the batteries employed in these attempts were too feeble to determine a loss of substance.

Thus it will be seen that the idea of destroying strictures of the urethra by electrolytic cauterization arises from the convergence of two entirely distinct lines of inquiry; that this method was subordinated, of course, to the invention of that means of cauterization; that its application to the operation which we are considering devolves from the comparative examination of cicatrices formed by acids and by alkalies; finally, that the conclusions to be legitimately drawn from the consideration of each element in the question are sufficiently definite to render the operation perfectly justifiable, and the results readily to be foreseen.

The character of the cicatrix determined the choice of alkalies in operating for the destruction of strictures; the power of limiting and controlling the action of the cauterizing agent induced the preference for the alkalies evolved by the negative electrode of a galvanic pile, over caustic potassa or Vienna paste.

We have next to describe the operation itself, and the instruments employed.

The preliminary explorations, and the verification of results obtained, were made with conical bougies with olive-shaped extremities. The indications of calibre are according to the gauge of Charrière, in which No. 1 represents a bougie of one third of a millimetre in diameter—a millimetre is about half a line—each successive number of the series answering to an increase of one third of a millimetre in the diameter of the bougie.

The battery employed in MM. Mallez & Tripier's first operations consisted of twelve small pairs, with the bi-sulphate of mercury. Subsequently, a pile of eighteen pairs of medium size, with the proto-sulphate of mercury, was employed. Daniell's battery of fifteen to eighteen pairs would answer equally well. The urethral electrode consists in a guide, whose extremity closes the terminal opening of an india-rubber catheter, destined to protect the parts which are not to be cauterized. Messrs. Mallez & Tripier first adopted a very slender guide of German silver, with an olive-shaped extremity; they next substituted for the olive a cylinder, from three quarters to $1\frac{1}{4}$ inches long, so as to be able to cauterize laterally over a larger surface; they have now replaced the unyielding guide by a more pliable one, made of twisted wires, still retaining, however, the cylindrical extremity. They claim that this flexibility of the guide gives a greater degree of security in operating upon the curved portion of the urethra. The surgeon placing himself on the right of his patient, the

positive electrode is fixed upon the internal surface of the left thigh: it consists of a broad carbon button, separated from the cutaneous surface by two or three discs of moistened fungus (*agaric*). This disposition is to avoid a needless cauterization at this point. Contact between the skin and the carbon button is maintained by a band of india-rubber.

Everything being thus disposed for the operation, the carbon button being fixed upon the thigh, and the urethral electrode, covered by its protecting catheter, being placed in apposition with the anterior face of the stricture, the circle is closed at the positive electrode. The patient soon begins to experience a burning sensation at the point undergoing cauterization, but this sensation, which, even at the start, is feeble, diminishes still more as the eschar is formed.

The guide is then to be gently pushed, so as to maintain its apposition with the stricture, cauterizing in this way both from before backwards, and laterally. By pushing the catheter over the guide, so as to only allow a small portion of the latter to project, the duration, and therefore the depth of the lateral cauterization may be limited at will, that from before backwards continuing without interruption. Finally, when the obstacle is destroyed, the catheter passes without difficulty over the terminal button of the guide.

None of Drs. Mallez' and Tripier's operations were performed at the residences of the patients. After the operation, and after the verification of the increased calibre of the urethra, the patients went away, on foot, to take a bath, or, in some cases, to resume their daily

avocations, even when this involved bodily labor. The operation completes the treatment. No subsequent catheterism is needed to maintain the calibre of the urethra.

The introduction of sounds from time to time, after the operation, is merely to satisfy the surgeon that the destruction of the stricture is permanent. It has also been noticed that, instead of diminishing, the calibre of the urethra increases for some time after the operation. This phenomenon has been ascribed to the resolution of peri-urethral engorgements, situated within the sphere of action of the negative electrode.

From a report of thirty successful cases I have selected the following, as best illustrating the merits of the method, and the practical difficulties with which it has to contend.

CASE I.—D., æt. 62, custom-house officer. Has had one gonorrhœa, when 20 years old. Micturates with difficulty for the past ten years. After several years, during which the desire to micturate became more and more frequent and imperious, D. was attacked by an incontinence, which persisted for eighteen months, obliging him to wear a urinal.

May 2, 1864. Exploration with a conical bougie reveals the existence of an obstacle situated at the end of the spongy portion of the urethra. By a rectal examination the prostate is found to be hypertrophied without deformity.

Twenty minutes are fruitlessly employed in attempts to overcome this obstacle by a bougie No. 3 (1 millimetre in diameter). These attempts are followed by the effusion of four or five drops of blood. The case not being urgent, the patient is allowed a few days' repose, and a bath is prescribed.

May 6. After three quarters of an hour spent in vain efforts, No. 3 is made to penetrate the bladder. A bath.

May 9. After having introduced and withdrawn this same bougie, No. 3, the galvano-chemical cautery is applied for five minutes, with a pile of twelve small pairs, with bi-sulphate of mercury. More than three eighths of an inch of stricture are destroyed. Immediately after the operation, bougies Nos. 19 and 20—the latter measures just one quarter of an inch in diameter—can be introduced, without causing the least trace of blood. The patient at once urinates with a full stream. No fever. From this time out, the patient continues to micturate with ease, and his incontinence has entirely disappeared.

After a lapse of several months, the cure was found to be still permanent.

CASE II.—P., 45 years old, butcher. Good constitution. Three gonorrhœas; treated by copaiba, cubebæ, astringent injections, and leeches. Presents himself at the dispensary in December, 1863. A spongy stricture $3\frac{1}{8}$ inches from the meatus, with a fibrous band in front of it. Examined with the endoscope; the mucous membrane is of a violet red. Touched three times with a solution of nitrate of silver, of fifteen grains to the ounce; the mucous membrane assumes a better color, and micturition becomes less difficult.

Patient not seen again till August, 1864. At that date the stricture will only permit the passage of No. 6, and even that size is introduced with difficulty.

Aug. 29, 1864. Application of the galvanic cautery for five minutes, with the same battery as in case I. No blood. Bougie No. 19 is passed at once. A week later No. 20 passes easily. Patient seen again in June, 1867; same condition.

CASE III.—F., 42 years of age, sergeant of police, two gonorrhœas; the first in 1845. Constantly increasing difficulty in micturition.

In 1851, a total retention. Two strictures and a fibrous band. Dilatation for three months, pushed as far as No. 17.

In November, 1864, F. presents himself with two strictures, situated at $2\frac{1}{2}$ and $3\frac{1}{2}$ inches, respectively, from the meatus, and which will only admit No. 7.

Early in December the galvanic cautery is applied for twelve minutes, with the same battery as in the preceding case. Immediately afterwards No. 20 passes readily. For the past two years and a half, F. has been examined at intervals of six months; at present he admits No. 22 without difficulty.

CASE IV.—C., 31 years of age, cooper. Four gonorrhœas, the first in 1858. Is of a lithic diathesis. Two strictures; one at three quarters of an inch, the other $2\frac{1}{2}$ inches from the meatus. Bougie No. 9 will not pass.

Oct. 25, 1866. Application of the galvanic cautery for fifteen minutes. The two strictures are destroyed. No. 17 passes freely.

Nov. 8. Nos. 19 and 20 pass without difficulty.

Nov. 22. No. 22 passes freely.

Patient seen again January, 1867; same condition.

CASE V.—J. A., 27 years old, Spanish Government clerk. Frequent gonorrhœas. Urinates with great difficulty. A filiform stricture at $4\frac{1}{2}$ inches from the meatus. Bougies 3, and subsequently 5, are passed with difficulty.

Nov. 15, 1866. Application of the galvanic cautery for twelve minutes. Slight hæmorrhage. No. 8 passes, but is retained. Improvement in micturition.

Nov. 20. Second cauterization for seven minutes. Again a slight hæmorrhage. Bougie No. 16 passes very readily, and is not at all retained.

Nov. 30. No. 19 is not retained.

CASE VI.—M., 45 years of age, private in the Zou-

aves of the Imperial Guard. One gonorrhœa. Was treated by dilatation two years ago for a stricture, and left the hospital cured. At present M. can only micturate drop by drop, with his body doubled up. A multiple fibrous stricture, a trifle over three quarters of an inch in total length, and occupying the posterior part of the spongy portion of the urethra.

The successive and excentric orifices of these strictures are found with great difficulty, and it is only after repeated attempts, with a whalebone bougie, that No. 5 is introduced, and even that is tightly grasped by the stricture.

Nov. 15, 1866. Application of the galvanic cautery (eighteen pairs, medium size, with proto-sulphate of mercury,) for sixteen minutes. The anterior portion only of the stricture is destroyed.

Nov. 22. No change in the patient's condition. Second application of the galvanic cautery for nine minutes, with a Bunsen's pile of nine pairs, feebly charged. No note taken of the immediate results of the operation. The patient micturated better for some days.

Dec. 6. Vesical tenesmus and dysuria. Alkaline baths.

December 13.—Bougie No. 2 is very tightly held. Third application of the cautery for nineteen minutes, with the same pile as at first. The end of the stricture is not yet reached. For the succeeding few days the patient urinates much more freely.

December 18. Fourth application of the cautery, for nine minutes. The stricture is passed.

December 27. Fifth application, permitting the introduction of No. 14. M. urinates very freely, but leaves Paris on furlough. Dr. Mallez expresses the liveliest regret at no longer being able to follow up this extremely interesting case.

CASE VII.—M., 39 years of age, sergeant in the Third Grenadiers. Commenced having gonorrhœas in

1847; has practiced rupture of the cord upon himself three or four times. Was urethrotomized a year ago with the running-blade urethrotome. This operation left behind it a persistent pain in the fossa navicularis. For some time, however, M. urinated freely; then with constantly increasing difficulty. Twice he suffered from retentions, which were relieved by baths.

January 18, 1867. Bougie No. 7 is tightly grasped by the stricture. As the patient could not interrupt his military duties, it is decided to operate several times, cauterizing a little each time. Nine minutes of galvanic cautery, with the usual battery. No. 11 is held, but less tightly than No. 7 had previously been. A second cauterization for $2\frac{1}{2}$ minutes; No 16 passes, but is slightly retained.

January 24. A third application for seven minutes. No. 20 passes easily, and is not at all retained.

February 1. Same condition.

CASE VIII.—D., 36 years old, currier. One gonorrhœa, complicated with orchitis, fifteen years ago. Great difficulty in micturition. On examination we find a spongy stricture, which admits No. 11.

July 15, 1866. Urethrotomy with the olive-shaped urethrotome. Eight days after, passage of No. 19. At the end of August the patient again presents himself, complaining of the same symptoms as before the operation.

August 30. Is again urethrotomised, and dilatation kept up for two months, and carried as far as No 22.

November 4. The patient complains of the same difficulty in urinating as before treatment. No. 12 is tightly held. Mechanical dilatation with Priestly's instrument. Slight hæmorrhage. The dilatation, which had been carried to No. 19, diminishes rapidly.

Feb. 22, 1867. No. 12 passes with difficulty. A circular stricture at $4\frac{1}{8}$ inches from the meatus, which from spongy has become fibrous. Five minutes of

galvanic cautery. Bougie No. 18 is not retained; No. 20 passes easily, but is retained.

March 1. Same condition.

March 29. No. 13 a little retained. Galvanic cautery for seven minutes. No. 19 is not retained.

April 4. Bougie No. 20 is not retained.

May 3. Same condition.

May 17. D. already begins to urinate less freely. No. 19 passes readily, but is slightly retained. Galvanic cautery for six minutes. Bougie No. 20 passes without resistance, and is not retained.

July, 1867. The patient continues to urinate well.

CASE IX.—D., 37 years old, hospital steward. One gonorrhœa, contracted in Brazil, and much neglected. Urinates with difficulty since 1851. Has had from the beginning several total retentions. Treated several times by dilatation. A urinary abscess in 1859. Operated upon by Heurtaloup in 1866. Treated by dilatation at the Military Hospital of Val de Grâce in 1861. Again dilated in 1864.

March 29, 1867. A strongly retractile fibrous stricture at $4\frac{1}{2}$ inches from the meatus. No. 10 passes with difficulty, and is firmly grasped. Application of galvanic cautery for twenty-two minutes. Bougie No. 12 alone is passed; it is not at all held.

April 13. No. 21 passes freely. No traces of the stricture remain.

CASE X.—A., 60 years old, type-setter. One gonorrhœa, lasted six months. Micturates with difficulty for the past thirty years. Has dilated himself from time to time more or less regularly.

May 10, 1867. Presents himself with a retention which has lasted ten hours. It is only after many and prolonged trials that a conical catheter No. 4 is made to penetrate to the bladder, though tightly grasped.

May 17. Galvanic cautery for fifteen minutes. Bougie No. 20 passes easily, but is slightly retained by a

fibrous band, which was not touched by the electrode, and which a second application of four minutes suffices to destroy. No. 22 then passes readily.

Patient seen again May 24 and 31; the same satisfactory condition continued.

On considering the above cases, the reader will not fail to be struck with the rapidity with which satisfactory results are obtained by means of an operation which is not more painful than simple catheterism.

As, on the other hand, it has never been established for any of the old methods, that the cure is permanent, after dilatation of the urethra is once obtained, the superiority in *immediate result* should alone suffice to merit a preference for the operation of Drs. Mallez and Tripier.

But that is not the only advantage claimed. The stricture once destroyed, the calibre of the urethra is maintained ever afterwards, indeed, is for some time increased. It may be objected that these operations are all of too recent date to establish the fact of durability beyond all cavil. That is true, but some of them already date from more than three years ago, and the fact of not having had, out of more than thirty operations, the least symptom of a return of the affection, has a significance which will not escape the attention of any surgeon who has much experience in stricture of the urethra.

One patient succumbed to urethral fever, six days after the operation; but the same accident came very near happening to him once before, after urethrotomy, so that this deplorable result cannot fairly be attributed to the galvanic cautery.

Once also, and only once, a patient complained of acute pain. MM. Mallez and Tripier declare their inability to explain this exception to what has been to them a universal rule. Indeed, the positive pole, fixed upon the thigh, has generally been found to occasion the most inconvenience.

Hæmorrhage has also been noticed sometimes. It is exceptional, however, and seems to have occurred only when the preliminary explorations have been laborious or much prolonged. Nor has the loss of blood exceeded a few drops, except in one instance, when it may have amounted to a thimblefull.

The conclusion which MM. Mallez and Tripier draw from the results of their labors, and which they desire specially to impress, is this: That internal urethrotomy is an operation which should be entirely abandoned, now that more satisfactory and more permanent results can be obtained in less time, and with less danger,

Without venturing an opinion as to how far this expectation may be justified, I would submit that the facts represented are well worthy the attention of all surgeons. The serious character, as well as the deplorable frequency, of the affection for which this operation professes to afford permanent relief, and the often delusive and transitory benefits resulting from internal urethrotomy, entitle the galvanic cautery to the earnest consideration of all advocates of progressive surgery. If it does as much in other hands as it has in those of Drs. Mallez and Tripier, it seems to me that we may all lay our urethrotomes aside, and with them the uncertain

and sometimes hazardous operation for which they were devised.

ART. IV.—*The Search for Balls in old Gun-shot Wounds.*

By M. GOLDSMITH, M.D., Rutland, Vt.

EVERY surgeon knows the great difficulty which occasionally attends upon the search for musket balls and like missiles, especially in old cases of gun-shot wound. The oftentimes devious path through which the pus travels to the surface, whether the road is the ball track or a new canal, renders the introduction of a probe to any great distance impracticable. The length of the canal is too great to be traversed by the finger, and the surgeon naturally and properly hesitates to set out on a voyage of discovery when he has to cut his way in hunting for the road. Of course, when the position of the ball is determined, its extraction is commonly easy enough.

A case presenting itself to me during the past winter fully illustrates the difficulties to be surmounted.

A color-bearer in one of the Vermont regiments received a gun-shot wound in the hip. The ball entered at a point midway between the antero-superior process of the ilium and the great trochanter. Nothing was discoverable of its direction except that the fistulous canal leading from that point passed backwards and towards the dorsum of the ilium. On the thigh, and on its posterior surface and just above its middle, there were two other fistulous openings. At some pe-

riod in the history of the case, the parts at the aperture of entrance had been attacked with hospital gangrene, for which bromine had been applied. The eschar following this had indurated the tissues round about, so that this opening was too small to admit the finger. A probe passed backward towards the ischium about a finger's length. No point of tenderness or of fluctuation could be felt anywhere in the hip, buttock, or thigh, nor did pressure reveal any fountain of suppuration.

The man stated that the most persevering efforts had been made, in the several hospitals to which he had from time to time been removed, for the discovery and removal of the ball. He was very much emaciated. He had bed-sores. The discharge was profuse, chiefly from the opening on the thigh. His cheeks had a hectic flush. Of course, an operation which contemplated a division of the glutei throughout their extent, an operation giving traumatic surfaces almost equal to those of a hip-joint amputation, was not to be thought of.

The methods used in this case were those devised by me, while I was in charge of the Jefferson U. S. A. General Hospital, for the search for and removal of balls in such and analogous cases.

In the first place, the aperture of entrance and the upper opening of the back of the thigh were dilated with sponge tents. When these apertures had been made large enough for the reception of my finger, the canals were explored as far as the finger would reach. Of course no ball was found, but the general direction

of the sinuses was accurately determined. Guided by the finger, the canula of a long curved trocar, (such as is used for tapping the bladder from the rectum), was passed along the sinus leading from the upper aperture, and as far as it could be made to go, keeping in the canal. The point of the canula being now pressed so as to project the superficial parts, the stilet was introduced, and the point of the instrument made to emerge through the skin. The stilet being withdrawn, a long-eyed probe, armed with a strong double ligature, was passed through the canula, and the latter withdrawn. With the aid of the ligature a stout piece of linen was drawn into the opening made by the trocar. A like procedure was gone through with at the lower opening. As soon as the pieces of linen in these openings lay loose enough, they were removed, and compressed sponge tents took their place. When the new openings were large enough to admit the finger, it was introduced, and the regions in reach explored. Meanwhile the old openings had begun to contract, and were not afterwards interfered with. It will be seen from this that we were approaching the ball by two converging lines, and that all of the region intervening between the new and old openings had been thoroughly searched by the finger, as well as a finger's length in advance of each. As the areas of suppuration diminished, the quantum of pus lessened.

From these second openings a second advance was made, the process being the same. On examining the second point of approach from the thigh, I found that the canal bifurcated. The trocar was carried

through the deeper canal, as in the former instances, and when the finger could be got in to explore, the ball was found on the margin of the ischio-rectal fossa, as I was informed by Dr. Fox, who was in the immediate charge of the patient. The removal required but a slight touch of the knife to facilitate extraction with the forceps.

The patient began his convalescence with the establishment of the first openings, and during the past summer has been able to work in the hayfield with as much effect as he ever did.

The methods employed in this case are exceedingly flexible; capable of adaptation to a great variety of conditions. With their use I have as yet found no instance in which the ball could not eventually be found, or in which they did not lead the way to finding it. Inasmuch as this method may be made to supersede, in a multitude of cases, more sanguinary measures, it seems to me to deserve the consideration of surgeons.

The difficulties sometimes met were overcome in various ways.

Occasionally so sudden a flexure was found in a canal that the rigid canula would not pass without laceration of some part of the wall. In some such cases a long sponge tent was introduced to open the way for the canula. Sometimes a small catheter introduced first served as a director over which the canula could be introduced.

Then, again, it was occasionally found necessary to form the sponge tent around a piece of catheter, so as to allow the pus to escape without hinderance.

Whenever the dilatation of the opening proved especially painful, the skin at the aperture was notched a little way with a knife.

Finally, it always seemed to me to be important that the pyogenic membrane of the fistulous canals should be lacerated as little as possible.

ART. V.—*The Measurement of Respiratory Action.* By
ALFRED L. CARROLL, M.D., New York.

THE cavity of the chest may be enlarged during inspiration in two ways:

First, and chiefly, by the contraction of the diaphragm.

Second, and to a much less degree, by circumferential expansion.

In ordinary, unlabored respiration, the action of the diaphragm is almost alone concerned. Even in women it is probable that the movement of the chest is due, not to the action of the thoracic respiratory muscles, but to the fact that corsets and tight clothing around the waist, by fixing the inferior ribs and impeding abdominal expansion, prevent the diaphragm from depressing itself, and thus force it to elevate the thorax. Any one who will notice the difference in the character of the respiration of the same woman when encased in "evening dress" or in the freedom of a night-gown, may convince himself of this.

In forced respiration, however, after the action of the diaphragm has reached its limit, the mobility of the ribs

is called into play by the contraction of the intercostal, scaleni, serrati, and other auxiliary muscles. In other words, volition comes to the aid of instinctive action. The air thus drawn into the lungs is called by Mr. Jeffreys "complemental," as distinguished from "tidal" air, or that portion pertaining to tranquil respiration.

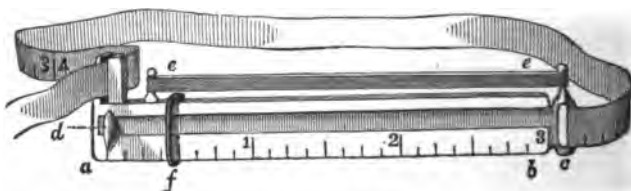
For the purposes of this article, I shall apply the term *tidal* to the air respired by instinctive diaphragmatic action, and *complemental* to the air inhaled by voluntary muscular effort. These definitions are not, of course, strictly accurate, since the diaphragm is to a certain extent under the control of the will, and the thoracic respiratory muscles are liable, under some circumstances, to involuntary motion; but within the bounds thus assigned, they will serve to convey my meaning.

Stethometry, or measurement of the chest, as ordinarily practised, serves only to ascertain the amount of complemental respiration as indicated by the costal expansion, leaving to the spirometer and to guesswork the task of estimating the tidal or diaphragmatic breathing. Even as regards the complemental air, want of system in recording the results of stethometry has prevented it from furnishing satisfactory data. We are told that in a given series of observations, so many inches "expansion" formed the average; but it is seldom stated at what portion of the chest the measurement was made. The usual method, however, is, I believe, to apply the tape over the nipples.

Now, the mobility of the ribs increases greatly as we descend, the false ribs having much greater move-

ment than the sternal, and, of the latter the inferior yielding more than the superior pairs. We accordingly find the greatest amount of expansion when the measuring tape is applied below the margin of the diaphragm. This expansion, however, is due merely to mechanical distension of the ribs from displacement of the abdominal viscera, by the descending diaphragm. Higher up, the amount of expansion diminishes, partly from the lessening circumference of the thorax, partly from the smaller extent of mobility of the ribs.

Several instruments have been devised for the purpose of ascertaining the extent of expansion of the chest. The best known of these is Sibson's stethometer. It is, however, apt to get out of order, and its expensiveness is also an objection to its general employment. The majority of physicians, in this country at least, adhere to the plan of passing the tape around the uninflated chest and allowing one end to slip through the fingers as the chest expands. This mode of procedure is obviously liable to inaccuracy. I give below the drawing of a stethometer which I had made by Tiemann & Co., of this city, which, as regards simplicity and exactness, will, I think, be found satisfactory.



It consists of an outer case, marked with a scale of three inches, *a b*, within which moves a slide, *c d*,

bearing a gnomon or indicator, *d*. To the end of this slide is attached an ordinary measuring tape, the first three inches being cut off, so as to render the scale continuous, which is passed around the chest and drawn through the catch at the opposite end of the instrument. As the lungs are inflated, the slide is drawn out and the indicator shows the exact amount of expansion. A hard rubber ring, *f*, sliding easily over the scale, may be used to render the stethometer self-registering; and Mr. Tiemann has added also an elastic band, *e e*, to draw the two portions of the instrument together. This elastic band, if used at all, must be very slight, as I have found that even the thin ordinary envelope rings prevent the full expansion of the chest. I therefore remove the band before applying the stethometer, which thus registers itself without the hard rubber slides.

Before proceeding to comment upon the results of stethometry, I wish to call attention to the great discrepancy of the opinions advanced as to the actual amount of air contained in the lungs, or exchanged during respiration. Magendie says that

According to Menzies, the medium quantity of air which enters into the lungs at each inspiration, is three hundred and twenty cubic inches. Goodwin thinks that, after a complete expiration, the lungs still contain about eight hundred and eighty cubic inches. Menzies asserts that the quantity is much greater, and that it amounts to fourteen hundred and sixty one cubic inches.

According to Davy, after one strong expiration, his lungs retain three hundred and thirty two cubic inches.

	Cubic inches.
After a natural expiration.....	970
After a natural inspiration.....	1106
After a strong inspiration.....	3206*
By strong expiration, after a deep inspiration, there passed out from the lungs.....	1556
After a natural inspiration.....	643
After a natural expiration.....	353

Mr. Thompson thinks that we shall not be far from the truth if we suppose the quantity contained in the lungs to be 2294 cubic inches,† and that there enters and passes out of the chest at each expiration and inspiration, 327 cubic inches.

Such absurd over-estimates as the above passed current until the spirometer controverted them by its exact registry of the expired air. With the aid of this ingenious contrivance, Dr. Hutchinson has shown that the amount of air that can be expelled by the deepest expiration after the fullest inspiration, bears a singular relation to the height of the individual.

For every inch of stature from five to six feet, eight additional cubic inches of air at 60° Fahr. may be thus given out. . . . The quantity of air which can be thus expelled for the stature of five feet one inch, is 174 cubic inches, and for six feet, 262. It is independent of the absolute capacity of the chest.‡

Carpenter, alluding to Hutchinson's experiments, says :

The size of the chest affords no good indication of the capacity of expiration. The results of such examinations are so nearly uniform that disease may be

* This capacity would require a pair of lungs eight inches in altitude, and measuring ninety inches in their greatest circumference, sixty inches in their smallest circumference, or at their apex !

† Answering to 42 inches circumference at apex, 72 inches at base, and 8 inches altitude.

‡ Draper's Physiology, p. 166.

suspected in any man who cannot blow out nearly so many cubic inches as the average of those of the same height; the only exceptions among healthy subjects, being in the case of fat men, whose capacity is always low.

Notwithstanding the positive data thus furnished by

er, we find that it, like the steth-

results of *forced* respiration, or,

res the *tidal* and *complemental* air

ac and diaphragmatic breathing.

or ordinary tranquil respiration,

Estimates have been made. Mr.

ervations made upon himself, fixed

of respirations in a minute at

bulk of each inspiration at 16 cubic

quantity that passes through the

hours, at 460,800 cubic inches, or

Erdot, from experiments on him-

est, calculates the diurnal total at

(about $23\frac{1}{2}$ for each inspiration,

ons to a minute,) and considers

ed be increased by the ordinary

o 624,087 cubic inches, (or $27\frac{1}{2}$

) Valentin places the diurnal

ic inches, ($30\frac{1}{2}$ for each inspira-

by measuring the amount of water

athed into a condenser kept at a

btained the following results:

een respirations in the minute,

and continuing the experiment for twenty minutes, the average of five different series of experiments gives 622

cubic inches of air expired each minute, ($38\frac{1}{2}$ at each expiration.)

2. On making six respirations in a minute, and continuing the trial for twenty minutes, the average of three series of experiments gives 511 cubic inches of air expired each minute, ($85\frac{1}{2}$ each expiration.)

3. On making thirty-three respirations in a minute, and continuing the experiment for twenty minutes, the average amount of air is 1077 cubic inches expired each minute, ($32\ 7\text{--}11$ each respiration.)

Taking the first of these experiments as representing normal diaphragmatic breathing, we may accept its results as the average measure of the tidal air, although this is probably subject to variations proportioned to the height of the individual, just as in the case of forced respiration.

We have seen that in ordinary tranquil respiration, the diaphragm is concerned almost if not quite alone, and that the spirometer and stethometer are employed to deal with the complementary air, or that portion inhaled by excessive action of the diaphragm, aided by the contraction of the thoracic muscles. The comparative influence of these two actions may be computed in the following manner:

Roughly estimating the uninflated lung cavity as a truncated cone, having a diameter of 10.82 inches at its base, 4 inches at its apex, and an average altitude of 8 inches, its capacity is 369.3 cubic inches. Deducting from this 13 cubic inches for the space occupied by the healthy heart, there remains 356.3 cubic inches as the solid contents of the unexpanded lungs. Making

allowance for the space filled by the vessels, the bronchial tubes, etc., this estimate will be found to nearly coincide with Davy's calculation of the residual air, or that remaining after a strong expiration, (332 cubic inches.)*

Now, as the result of a number of experiments with the stethometer upon healthy subjects, I have found the average amount of thoracic expansion (which, from my observations, appears less than is generally supposed) to be as follows :

Measuring below the margin of the diaphragm.....	from $3\frac{1}{2}$ to 4 inches.	
Just above the margin of the diaphragm.....	3	"
Below scapulæ and lower margin of pectoralis major...	$2\frac{3}{4}$	"
Below scapulæ and over nipples.....	$2\frac{1}{2}$	"
Over scapulæ and over nipples.....	$2\frac{1}{2}$	"
Over scapulæ and sternal end of second ribs.....	$1\frac{1}{2}$	"

Throwing out the first of these measurements, which, as I have before stated, shows only the yielding of the

* In connection with stethometry, the following extract from Dr. Hammond's "Treatise on Hygiene," is interesting :

"With reference to the external dimensions of the chest relatively to the height, Mr. Brent (quoted by Hutchinson) has furnished some very valuable indications. These may be formularized as follows :

"Relation of the external chest to the height, measured over the nipples.

"Minimum chest: $\frac{1}{2}$ of the stature— 1.61 of the stature=circumference of the chest.

"Medium chest: $\frac{2}{3}$ of the stature— 1.15 of the stature=circumference of the chest.

"Maximum chest: $\frac{3}{4}$ of the stature=circumference of the chest.

"To apply these rules to practice, take an instance of a man five feet one inch in height.

"Minimum chest: height 61 inches, $\frac{1}{2}$ =30.5 inches— 1.61 =29.5 inches circumference of chest.

"Medium chest: height 61 inches, $\frac{2}{3}$ =30.05 inches,— 1.15 (4.07 inches)=34.57 inches circumference of chest.

"Maximum chest: height 61 inches, $\frac{3}{4}$ =40.7 inches circumference of chest."

These measurements we suppose to be made when the act of inspiration is half completed.

false ribs to mechanical pressure, we have $2\frac{1}{2}$ inches as the average greatest expansion of the lung cavity proper. This would give an additional capacity of 96 cubic inches. If this be deducted from the amount of air indicated by the spirometer, the remainder will show the extent of the action of the diaphragm. Thus, a man five feet six inches in height should expire 214 cubic inches by a strong expulsive effort after a full inspiration. Subtracting 96 from this amount, there remain 118 cubic inches to be attributed to the depression of the diaphragm—an estimate which, in the case of the thoracic dimensions I have supposed above, would be justified by an extreme central depression of about two inches.

Reviews and Bibliographical Notices.

ART. I.—*Illustrations of some of the Principal Diseases of the Eye, with a brief Account of their Symptoms, Pathology and Treatment.* By HENRY POWER, F.R.C.S., M.B., Lond., etc. London. J. Churchill & Sons, 1867. 8vo., pp. 631.

THE title of this book is aptly given, because it directs attention to the numerous colored representations of external and internal ocular disease which it contains. These are fine specimens of chromo-lithography, and good drawings from nature. The whole book is an elegant piece of typography, with clear type and broad margins, and reaches 631 pages octavo.

This seems bulky, but we find on perusal that much more needs to be written to present the whole subject of ophthalmology in fitting form. Our English lite-

rature does not yet possess a complete treatise on the subject as it exists at the present day.

Mr. Power's work is chiefly a collection of the views of other men. It is true he contributes his own experience, and every book must consist in greatest part of the results of other men's labors. But we expect an author to do more than simply quote the suggestions and views of others; we want to know his opinions of their value.

To give a few samples of the book, the chapter on strabismus gives a good resumé of the anatomy and physiology of the ocular muscles, and gives in a general way the pathology of strabismus as dependent on errors of refraction or upon paralysis. Then at page 43 begins the special description and treatment of convergent squint, concerning which the author leaves the impression that paralysis of the sixth nerve is its most common cause. This view is not expressly inculcated, but the great need of correcting the error of refraction does not have its due prominence. There is no allusion to the very common fact that astigmatism is to be found in many cases of strabismus, and binocular vision cannot be restored without correcting it. The author states that both eyes should not be operated on at the same sitting. For a deviation amounting to more than three lines, we think it always proper to do both operations at one sitting. The value of sutures is not mentioned in regulating the effect of the operation and closing the conjunctival wound; nor is Liebrech's method by free dissection and sutures mentioned. Indeed, the value of binocular vision and the methods for securing it are but imperfectly set forth; and this is what gives its chief importance to the subject.

Diseases of the lachrymal apparatus are well described, and for their treatment, the method of probing and injection of astringent solutions are recommended. But for the worst cases of obstruction of the duct and disease of the sac membrane or of the bones, this method is not effectual, and nothing remains but de-

struction of the lachrymal sac. To this the author does not resort, and says the operation is rarely undertaken in this country, (Great Britain.) We think Mr. Bader will be found to do it quite as often as cases appear which demand it, and in the *Ophthalmic Review* for April, 1866, page 54, it will be seen that Mr. Windsor and Mr. Lawrence frequently practice it. Ablation of the lachrymal gland, as revived by Mr. J. Z. Laurence, is not alluded to; it has not yet established itself in the confidence of ophthalmic surgeons.

The chapter on conjunctival disease is very judicious and satisfactory. The author inclines to the moderate methods of treatment, and his recommendations are sound. One exception may be taken to this remark, viz., on page 203 he speaks of controlling gonorrhœal ophthalmia by solution of nitrate of silver—gr.ij ad oz.j—in connection with frequent washing and liberal diet. It may be doubted if most surgeons would be satisfied to trust a bad case of this sort to the curative power of such a weak caustic solution.

The subject of trachoma is well handled; its pathology is succinctly stated, and the true principles and methods of treatment laid down. The distinction between inflammatory hypertrophy and trachomatous infiltration of the conjunctiva, is clearly presented. So, too, acute trachoma is well described.

Equal commendation belongs to the statements respecting corneal disease. The varieties are well distinguished, and the mode of treatment such as can be generally accepted. In treating iritis, the author employs a pretty decided antiphlogistic method, and lays great stress on the value in all cases of mercurial treatment associated with tonics. His emphatic assertions will probably be received among American practitioners *cum grano salis*.

When describing iridesis, the author fails to inform his readers of the instances in which cyclitis, and even atrophy of the globe have ensued, and made surgeons hesitate to adopt this proceeding, providing iridectomy

can be made to answer nearly as well for the optical effect.

On page 391 the author gives his first account of the use of the ophthalmoscope, and this we cannot consider satisfactory. Optical principles are almost ignored, and some errors have crept in; for instance, to recommend an objective lens of three or four inches focus, to be held "an inch or more in front of the eye of the patient," is a mistake either in the choice of the lens or in the distance at which it should be held. It is rather surprising that the author omits to state that the method of ophthalmoscopic examination which he describes, gives an inverted and real image of the fundus; and it is still more surprising that the reader does not get the slightest intimation that the fundus oculi can also be examined in a way which gives a virtual, upright and highly magnified image. Of course, no account is given of the value of the direct method in ascertaining the state of refraction.

Had the author been careful always to practise this mode of ophthalmoscopy in addition to the indirect mode, it is probable he would not have given the description he has of the case figured in plate ix, No. 57. He calls this central staphylomatous protrusion of the sclerotic. But he does not give any statement of the degree of myopia; while the absence of atrophy of the choroid at the optic entrance gives reason to suspect that the case was not one of sclerectasia, but simply of choroidal atrophy at the macula lutea. The employment of the direct method of examination would quickly decide the state of refraction and thus fix the diagnosis. The author in a foot note refers to other treatises "for a much more full and a very excellent account of the ophthalmoscopic appearances of the fundus," than his book affords, and we may thus feel bound not to criticise rigorously his performance, but it was well worth while to have left out some previous matter and given the student these very things.

Knowing that the author is a surgeon of Westmin-

ster Ophthalmic Hospital, we are not surprised at the frequent allusions to "Mr. Hancock's operation," which he denominates in page 420, "cylcotomy or division of the ciliary muscle." For acute glaucoma, this operation doubtless often gives relief, and it is for this the author recommends it; but why coin a new term to express in Greek the erroneous theory that cutting the ciliary muscle has, per se, anything special to do with the benefit derived from the paracentesis? The author seems balanced in mind as to the comparative value of iridectomy and "cylcotomy" in the treatment of glaucoma, but for acute glaucoma leans to "cylcotomy" as the easier to do.

Passing over the chapter on retinal disease, which contains little original observation, we open the subject of cataract. At the present day, when new modes of operating are being tested, one may perhaps be allowed to hold a suspended judgment as to which mode to choose. Our author appears to favor flap extraction for hard cataract. When speaking of linear extraction, he mentions the scoops which have been suggested, but does not mention how little inclination surgeons now show to employ them; they are left to be the last resort.

At page 541 is described a combination of discission with linear extraction, which is probably not accurately described. He says: "After the rupture of the capsule with the needle, the semi-solid cataractous substances may be pressed forward into the anterior chamber. A double-edged Wenzel's knife may then be thrust through the cornea at the lower part; the greater part of the lens escapes on separating the edges of the wound with the curette, and the remainder may be extracted with the same instrument." Pressing forward the lens matter into the anterior chamber, after rupturing the capsule with the needle, and without any other wound, is not a very safe manœuvre, and probably the author means no more than to make a free discission, and the coming forward of the lens matter is spontaneous, not the result of pressure.

In describing Graefe's modified linear extraction, a serious mistake occurs, one which is vital, or rather would be fatal if followed. Page 543. "The length of the incision thus obtained, he believes to be equal to four and a half or five millimetres; equal to one fifth of an inch." The author has mistaken the characters $4\frac{1}{2}''$ to $5''$ to mean millimetres instead of meaning Paris lines—these are the figures in the French translation of Graefe's paper by Ed. Meyer, page 42, which he quotes. In English measure this equals not one fifth of an inch, but four tenths to nine twentieths of an inch, a wound just large enough for the purpose and no more.

Not having done this operation more than three times, the author does not give an opinion upon it. He quotes Graefe's statistics, from M. Meyer's French translation of Prof. G.'s paper, and quotes also from Mr. Windsor's abstract in the Year Book of the Sydenham Society for 1866. The quotation from Mr. Windsor is introduced in a connection which would lead one to ascribe the success of 90 per cent. in 300 operations to belong to flap extractions, whereas it really is stated respecting modified linear extractions.

The last chapter is devoted to errors of refraction, and here we find numerous deficiencies. No department of ophthalmic science has been more fruitful of brilliant discoveries than this; and in no department can we attain a greater degree of certainty of diagnosis, nor offer more perfect methods of relief. Diseases of accommodation and refraction are dismissed with twenty-nine pages, of which asthenopia takes three and astigmatism four. The author in a foot note refers to authorities, but where so much had been said on more commonplace topics, surely these newer themes deserved fuller consideration. The section on presbyopia begins with the remark that "presbyopia, termed by Donders hypermetropia acquisita, etc." We greatly err in our apprehension of Donders' views if he will consent to be saddled with this definition. It is true he describes presbyopia as finally,

in old age, amounting to hypermetropia, when the far point has gone beyond infinity, and the person needs convex glasses for distant as well as for near vision, but to call presbyopia in its early period "acquired hypermetropia," or to make the two terms synonymous, is an utter perversion of the distinctions in which all are now agreed. In truth this sentence is probably simply a blunder, and a reference to Donders' book, page 204, will show that it may have originated from careless reading of the caption of §16.

There is another blunder which indicates a careless use of English, and equally inexcusable, on page 524, where, speaking of the expulsion of the lens in performing extraction, as being sometimes difficult, he says: "it is probable that its reticence depends either on the opening being too small," etc. By what metaphor the opaque lens can be called *reticent*, implying that it could ever be anything but silent, we cannot conceive; perhaps the author meant to use the word retention.

On the whole this book is not without value, but we are yet to look for the treatise which will fill the gap in English ophthalmic literature. Perhaps it is too much to expect the whole subject to be comprised in one work. But let us have no more feeble and unsatisfying hand books. Ophthalmology is becoming something akin to a positive science, and we want treatises which handle well and completely the section which they attempt to discuss. Far better is it to write a good monograph on one topic, than a diluted essay which attempts many and exhausts none.

ART. II.—*The Intracranial Circulation: an Essay, to which was awarded the First Prize of the Boylston Medical Society in 1867.* By THOMAS DWIGHT, Jr., House Surgeon of the Mass. Gen. Hosp'l. pp. 28. University Press, Cambridge, 1867.

THIS admirable little monograph, without presenting

anything decidedly new, brings together with great clearness of analysis the conflicting views of physiologists and pathologists upon a subject of considerable interest and importance. The legitimate object of prizes for essays upon special subjects undoubtedly is to bring out original investigations; but in the absence of new experimental researches, nothing can be more useful than clear and dispassionate analyses of conflicting observations upon important subjects.

The peculiarities of the intracranial circulation certainly present great physiological interest, and some years ago attracted a great deal of attention. Many will remember the very animated discussion which took place between Dr. Kellie, who adopted the idea of the great anatomist, Monro, that the quantity of fluid in the intercranial vessels was necessarily invariable, and Dr. Burrows, who contended that the circulation here, as in other parts, was subject to important physiological and pathological variations.

The views of the most reliable authorities on this subject are pretty well settled, however, at the present day; and the experiments on the physiology of sleep by Durham and by Hammond, show conclusively that many of the varied physiological conditions of the encephalon depend upon variations in the activity of the cerebral circulation; but in many recent works this subject is handled as though it were still one of doubt.

The author of the essay before us has certainly discussed most ably all the experiments and observations bearing upon the intercranial circulation. We judge from the title-page that when this paper was written he had not graduated in medicine, yet the clear, scientific style and admirable spirit displayed throughout the paper would do credit to an experienced writer.

The conclusions arrived at with regard to the intercranial circulation are so carefully considered and fully carried out by the facts, that we quote them as a good *résumé* of what is actually known on the subject:

“1st. That the circulation within the cranium varies

according to the wants of the system or accidental circumstances.

"2nd. That though it is regulated by the same forces that govern the general circulation, their action is modified by many peculiar arrangements of surrounding media.

"3rd. That the cerebro-spinal fluid maintains the plenitude of the skull and spinal canal, the cranium being very nearly a closed case, and the brain almost incompressible.

"4th. That the blood returned from the brain differs in its composition from the rest of the venous blood."

ART. III.—*A Practical Treatise on the Diseases of Children.* By D. FRANCIS CONDIE, M.D. Sixth Edition, Revised and enlarged. Philadelphia, Henry C. Lea, 1868, 8vo, pp. 783.

Six editions of a book are a practical endorsement of its merit, more valuable than the commendatory notices of the press, and one too that leaves to the reviewer only the duty of calling attention to the renewal of the work. The edition before us has undergone a careful and thorough revision, and by the addition of new materials, compiled from every available source of information, is brought quite up to the advanced state of knowledge regarding that class of diseases which claims so large a share of the practitioner's attention, and which demands so much skill in their proper management.

ART. IV.—*Germinal Matter, and the Contact Theory; An Essay on the Morbid Poisons, their Nature, Sources, Effects, Migrations, and the Means of Limiting their Noxious Agency.* By JAMES MORRIS, M.D., London, &c., second edition, London, John Churchill & Sons 1867, 12mo, pp. 111.

DR. MORRIS has done good service through the lit-

the book, the title of which heads this notice. He endeavors, and we think successfully, to show, that diseases spread by actual contact of the healthy body with the organic matter thrown off by the body when diseased.

Three steps of proof lead to the conclusion which he seeks to establish.

“1st. Air floats light little masses long and far.

“2d. We are always throwing off light little masses of matter.

“3d. These enter the body by different channels, especially by the airways, whose natural defences are insufficient to prevent them from going to the air-cells—to the blood.”

From these premises the conclusion is deduced, “that light little masses from the body of one individual are constantly received by other individuals, so as to reach their blood.”

Now as the “light little masses” which are thus thrown off from the body very often contain living matter in a state of active growth, we have a ready and extremely plausible theory to account for the propagation of diseases by contagion. To be sure there is nothing very new in Dr. Morris’s hypothesis. He has taken Dr. Lionel Beale’s views as the basis of his argument, and has presented, in a forcible and convincing manner, a subject which has long engaged the attention of hygienists. The fact that even such comparatively large bodies as pus-corpuscles float about hospital wards where there are wounded persons, is very certainly established by microscopical observation.

In conclusion, Dr. Morris applies his doctrines to many important questions, including the location of hospitals, the disposal of excreta, the draining of marshes, and to the use of suitable disinfectants. His book is exceedingly suggestive, and will repay careful perusal by all thoughtful persons, medical or others.

ART. V.—*Obstetric Clinic—A Practical Contribution to the Study of Obstetrics and the Diseases of Women and Children.* By GEORGE T. ELLIOT, Jr., A.M., M.D., Professor of Obstetrics and the Diseases of Women and Children in the Bellevue Hospital Medical College, &c., &c. New York: D. Appleton & Co., 1868. 8vo., pp. 458.

DR. ELLIOT's book is precisely what it purports to be—a practical contribution to the Study of Obstetrics and Diseases of Women and Children; and the plan adopted in the writing thereof is well calculated for the furtherance of his purpose. Taking special cases which have occurred under his own observation, the author makes them serve the purpose of texts, as it were, on which to base his comments and teachings. He is thus freed from the restraint which would have attended the preparation of a *systematic* treatise on the topics of which he treats, and he is absolved from the obligations which the promise of a *complete* treatise would have implied.

Thus untrammelled and committed to no specific method of study, our author enters at once into the consideration of the relations of albuminuria to pregnancy, and groups together a large number of cases bearing upon this point; and from them he deduces conclusions at once practical, sensible, and incontestible, regarding the diagnosis, prognosis, prophylaxis, and treatment of this condition. The importance of a careful examination of the urine of pregnant women, is evident from the disastrous results that accompany this condition, and from the ease with which, under proper treatment, these consequences, in many cases, may be averted. At the same time prognosis should be guarded, for we see recoveries taking place even under alarming symptoms; and to hastily condemn a patient to die may of itself produce a discouragement and alarm that will interfere materially with her well doing. A number of cases are introduced showing the

value of prophylaxis, which is discussed under the heads of elimination by the skin, bowels, and kidneys, (a judicious distrust being shown in the use of diuretics, except the least stimulating;) the preference being given to elimination by the skin and bowels; diet; the induction of premature labor, (which is regarded with favor when the child is fully viable, although it is an elective operation to be decided on by no one sign, but on a careful summing up of the whole case;) blood letting, (which is wisely not recommended beyond its local use in cupping over the kidneys when the symptoms are very acute;) and the removal of all depressing and irritating influences. Another series of cases mainly illustrate the treatment, in which Dr. Elliott does not hesitate to express his decided preference for the use of chloroform; and in this we think he is fully sustained by the opinions of those best qualified to judge. Experience has shown that the dangers attending the use of this anæsthetic do not obtain to the same extent in obstetric practice as in surgical cases, (first pointed out, we believe, by Dr. Bennet,) and whatever therefore may be one's predilection in favor of ether, he is fully justified in using the more powerful, prompt, and reliable agent, chloroform. Venesection, which we have all been taught to regard as the only proper treatment, and which, out of respect for the traditional usages of the past, teachers still keep displayed in the front rank of remedial agencies, our author candidly confesses his loss of confidence in with each succeeding year, and his indisposition to resort to it as frequently as formerly. Local blood-letting is many times serviceable, but very likely, we suspect, this is due more to the combined effect of the counter-irritation and the relief of local congestions than to any influence it has on the systemic circulation. The hastening of delivery by artificial dilatation of the cervix, the use of forceps, and craniotomy, are well illustrated by suitable cases. Some cases of the induction of premature labor here introduced would seem, logi-

cally speaking, to be more appropriate to the treatment by prophylaxis. This closes the third chapter of Dr. Elliot's book. Further on we find an occasional case of eclampsia reported when discussing other points which he would make especially prominent, as viz., the use of the forceps.

Altogether there are reported forty-two cases of eclampsia, thirty-seven with albuminuria, four *without* albuminuria, and one in which the condition of the urine is not stated. Six other interesting cases of albuminuria without convulsions are added.

The value of this series of cases to the practitioner is immense, and can only be fully realized by a comparison with the statistics given in other authors. For instance, Dr. Collins,* out of a total of sixteen thousand six hundred and fifty-four confinements, occurring during a period of seven years, in the Dublin Lying-in Hospital, gives only thirty cases complicated with convulsions. Drs. Hardy and McClintock,† out of six thousand six hundred and thirty-four confinements, (also in the Dublin Hospital,) report thirteen cases of convulsions. A third series of cases from the same institution, by Drs. Sinclair and Johnston,‡ show sixty-three cases of convulsions in thirteen thousand seven hundred and forty-eight confinements. Other comparisons might be adduced, but these, from a single institution celebrated for the accuracy of its records and reports, are sufficient.

Chap. iv is taken up with the relation of epilepsy to the puerperal state. There is no evidence of any connection between the two, and while we are closely on the track of the causation of puerperal eclampsia, we are still quite in the dark as to the origin of at least many of the cases of epilepsy. Several cases of puerperal mania afford an opportunity for a brief description of this unpleasant complication of the puerperal

* A Practical Treatise on Midwifery, &c. London ed. 1835. P. 201 *et seq.*

† Practical Observations on Midwifery, and the Diseases incident to the Puerperal State. Dublin ed. 1848. P. 264 *et seq.*

‡ Practical Midwifery, &c. London ed. 1858. P. 386 *et seq.*

condition. Dr. E. does not suggest any definite view of its pathology, though his directions as to the importance of examining the excreta for the detection of albuminuria, cholesteræmia, etc., would seem to warrant his belief of its dependence upon some toxæmic influence.

Next in order comes the consideration of ante-partum hæmorrhage, its causes, the reasons for deciding for or against interference by prompt delivery, which is an elective operation, and the various methods of controlling the hæmorrhage. This portion is well brought out, and the cases are less numerous than in the previous chapters, but still amply sufficient for the purposes of illustration, and in this way we have more room for the expression of the opinions of the author. The distinction between the dilated and the dilatable cervix is nowhere more important than in cases of ante-partum hæmorrhage, and especial emphasis is laid upon this point. Corollary to this subject, Chap. vii gives the various methods of induction of labor, the douche, Barnes's dilators, sponge and other tents, manual dilatation, the introduction of the catheter between the membranes and the uterine walls, the separation of the membranes, the electric and galvanic currents, and the use of medicinal agents. Each of these is in turn discussed, its advantages and disadvantages pointed out, and careful instructions given as to the mode of application, the precautions in use, etc.

Our space will not admit of our following the author through his successive chapters, wherein he takes up the consideration of various subjects, viz.: the effect of tonic circular contraction of a band of uterine muscular fibres in delaying labor, post-partum hæmorrhage, obstetric operations in deformed pelvis, the choice, uses, and applications of forceps, embryotomy, version, inflammatory complications in the surgical treatment of diseases of women, (e. g., pelvic cellulitis, cystitis, peri-cystitis, &c.,) compression of the funis, retro-pharyngeal abscess, &c.

These subjects are considered in more or less detail,

according as their importance seems to warrant, and throughout the chapters are marked by a thorough and appreciative knowledge of the questions under discussion. Take, for instance, the use of the forceps: we find recorded in this book, seventy cases of the use of these instruments. These seventy cases, (not all, it is true, narrated for the purpose of showing the value or the use of the instrument, but all bearing upon these points,) comprise almost every complication that one would possibly meet with in practice. Now to analyze in each case the reasons for the preference given to this procedure, which more often than other obstetric operation is *elective*, would in itself require a volume. Our author, therefore, groups his cases in classes, and reduces his reasons almost to the conciseness of axioms. Indeed, our only regret, after a pretty thorough examination of Dr. E.'s book, is, that he has not given more of himself, and less of his cases; for his immense experience and his recognized skill entitle his opinions almost to a judicial aspect that would carry conviction in itself, unsupported by the evidence of the cases so lavishly brought forward. And in another edition of the book, which we expect will soon be called for, we shall hope to see this change made, and the value of the book thereby increased. We may be pardoned also for suggesting that the introduction of typical cases only will suffice for the purposes of illustration; and that some of those here presented might be dropped without any weakening of the positions to be deduced from them. But as the book now stands, it is invaluable for the practitioner of obstetrics, for he will hardly, if ever, find himself in a tight place, the counterpart of which he will not find in Dr. Elliot's book. To the student it is less valuable, for the author's treatment of the subject implies a considerable degree of knowledge on the part of those to whom it is addressed, as well as the ability to estimate the value of the different alternatives presented to his choice.

The closing chapter on Kyestein is mainly a reprint of an article published some nine years since in the New York Journal of Medicine, and the result then arrived at are sustained by subsequent experience. It is, in brief, that there are no recognizable peculiarities in the urine of pregnancy, as was once fully believed. Scarcely even can its appearances be called "corroborative."

A very complete double index, one of cases, the other of general topics, adds much to the value of the book for the purpose of reference.

Reports on Progress of Medicine and Surgery.

OPHTHALMOLOGY.

By HENRY D. NOYES, M.D., Professor of Ophthalmology in Bellevue Hospital Medical College; Surgeon to New York Eye and Ear Infirmary.

MUSCULAR APPARATUS.

ART. 1.—*Contributions to the Treatment of Strabismus.*

[Klinische Monatsblätter für Augenbeilkunde, vol. v, pp. 130.]

DR. SCHWEIGGER relates three cases of strabismus convergens dependent on ametropia, in which he successfully undertook the restoration of binocular vision. In the first patient, nine years old, he began by using prisms, to excite and correct double images, then as latent hypermetropia became manifest, he directed convex glasses; these optical means were used diligently during several weeks. The deviation of the optical axes greatly abated, the control over each eye became better, and finally a tenotomy of one internal rectus was done. The prisms and glasses were still employed, and perfect restoration of binocular vision in its fullest sense was accomplished. This case, and also the second, give occasion to some interesting observations on the physiological identity of the two retinae, and Dr. S. inclines to think that in strabismus, some other portion of one retina may assume vicariously

the function of the *macula lutea*, and thus procure binocular vision.

The second case had hypermetropia of 1-9 and 1-10; and the second operation left a strong divergence, which continued for 24 hours. This, in place of resulting unpleasantly, not only disappeared, but was succeeded by convergence, which lasted a year, the patient using +1-30 for near work. After that he came again to Dr. S., who ordered +1-9 and +1-10, which corrected the total hypermetropia, and then strabismus ceased. This degree of hypermetropia has a very important influence in determining the freedom with which tenotomy may be done.

The stereoscope was employed, and many interesting contrivances resorted to, indicating how much physiological optics enters into the treatment of strabismus.

ART. 2.—*Strabismus making its Appearance during the formation of Cataract.* [Ophthalmic Review, xi, p. 262. 1867.]

A MAN of 60 years had had cataract in the right eye twelve years, and some time after it began to squint inwards. A concomitant convergent strabismus became fully established. Dr. Rainey removed the cataract, and subsequently a capsular obstruction. The other eye had a degree of sight, and the patient now became troubled by an annoying diplopia. The tendon of the right internal rectus was next freely divided, and the diplopia and strabismus disappeared. Dr. R. thinks the strabismus may have been caused by the necessity for holding things near, as his sight became dull, and the consequent straining of the accommodation. The case is at any rate remarkable.

ART. 3.—*A Modification of the Operation of Strabismus.*
By Dr. R. Liebreich. [Archiv. fur Ophthal., XII, ii, 298, 306.]

THE author, who is perfectly familiar with the cau-

tions which Graefe gives for this operation, having been for several years his principal assistant, has sought a method of obtaining a greater degree of displacement of the tendon, without the dangers of sinking of the caruncle, and of excessive enfeeblement of the muscle. He has studied anew the anatomy of the so-called capsule of Tenon, or oculo-orbital aponeurosis, especially of that part which embraces the tendons at their insertion. He makes the following points: that the capsule of Tenon, as it lies in contact with the globe, may be divided into an anterior and posterior half, which may be compared to the two halves of a hollow sphere, fitted at their edges. The posterior cup, as it may be called, is perforated by the muscles, and intimately adheres to them as they pass through. The anterior half is much thinner, and difficult to isolate as a membrane. It adheres in front to the conjunctiva and sclera, and is much strengthened in its attachment to the conjunctiva in a line corresponding to the place where the tendons adhere to the globe. It then adheres closely to the surface of the tendons; also passes into the tissue of the lids. The lateral processes which, according to former accounts, have been described as running to either side of the tendons, and forming supplementary connections between them and the eye-ball, Dr. L. declares have no existence. Between the insertion of each tendon and the point where it perforates the posterior half of the capsule, is to be found only areolar connective tissue, and no distinct tendinous processes.

Dr. L. proposes the following mode of operating; taking the rectus internus: to cut the conjunctiva with forceps and scissors at the lower border of the insertion of the tendon, to separate the conjunctiva and capsule from each other, to dissect up the membrane as far as the semi-lunar fold, also to lift the caruncle and make a complete separation from the deep-lying parts. Dr. L. does not say how large must be the external wound, but it certainly cannot be less than 4" to 6" long. The conjunctiva is now completely loos-

ened from the capsule of Tenon, and the tendon is open review. Detach the latter from the sclera in the usual way without shortening it, and if a considerable deviation is to be relieved, make incisions into the adjoining connective tissue above and below. Finally, the conjunctival wound is united by sutures.

Dr. L. admits that the immediate result of this operation is a very marked limitation in the mobility of the eye, but says that this gradually disappears, and that the final result does not differ from that secured by the usual tenotomy. Unquestionably the danger of this mode of operating is in the possible production of muscular insufficiency, if not of an opposite deviation, but this may perhaps by experience be avoided. In cases of great deviation, and of considerable hypermetropia, the operation deserves trial.

ART. 4.—*Suppuration of the Cornea after the Operation of Bringing Forward the Tendon of the Internal Rectus Muscle.* [Klinische Monatsblätter für Augenheilkunde. Vol. v, page 73-79. Dr. P. Steffan.]

A BOY, 15 years old, had total paralysis of the third nerve of the left side, from a blow received when he was two years old. There was complete ptosis and divergent strabismus. To cure the deformity, Dr. Steffan performed Graefe's operation for advancement of the internal rectus. In this operation the eye is held inverted by a thread attached to the stump of the tendon of the divided external rectus. Everything did well for two days, and the thread was then removed. A little abrasion of epithelium took place at the edge of the cornea where it was touched by the thread. This ulcer went on until the cornea suppurred, and sight was totally lost by a large perforation. Besides the injury to the third nerve, there was reason to suspect that the blow had damaged the cerebral functions, as there was a slight amblyopia of the other eye. The untoward result of the operation Dr. S. attributes

to injured nutrition of the cornea caused by the paralysis, as the boy was in good health, and the operation was well done.

An interesting article on Nystagmus, by Dr. Kugel, is in the *Archiv. fur Ophthalmologie*, XIII, ii, 413-422. It classifies the cases and shows the various causes, (but omits to mention albinism,) and yet does not give us much help in treatment.

ART. 5.—*Symptoms of Paralysis of the Ocular Muscles.*
By PROF. A. VON GRAEFE. 1867. pp. 175.

THIS treatise is a reproduction of lectures given to the students of the University of Berlin in 1866. It is divided into two parts, the general and the special. Under the general are contained chapters on : 1st. The starting point in diagnosis. 2d. Disturbances of mobility and their phenomena. 3d. Diplopia. 4th. Fusion of double images, and the extent of the power to do so. 5th. Value of diplopia for diagnosis. 6th. Apparent departures from the laws governing double images. 7th. How to recognize the degree of paralysis, and on the behavior of antagonist muscles. 8. The theory of identity of the two retinas in its relations to diplopia.

In the special part are contained chapters on Physiology of the muscles, and this is followed by discussions of paralysis of the rectus externus, of the rectus internus, of the rectus superior, of the rectus inferior, of the obliquus superior, of the obliquus inferior, and then final observations.

Our limits do not permit any allusion to the contents of the chapters, and we merely call attention to the book.

LACHRYMAL APPARATUS.

ART. 6.—*Further Experience on removal of the Lachrymal Gland as a Radical Cure for Lachrymal Disease.*
By J. Z. LAWRENCE. [Ophthalmic Review, xii, 361, 1867.]

THE author gives a table of twenty cases, fourteen of which came under his own hands. In all the latter cases there was epiphora, abscesses and stricture of the nasal duct, and in four cases fistula of the sac. The duration of the disease was from one to twenty-five years. Probing had been employed in all, and in all a cure resulted only after the above operation. By *cure* is meant that in all cases but one the epiphora stopped, and in the exceptional case remained very slight. In eight of the fourteen cases it is noted that there was still discharge from the punctum; in three the abscess was cured. By abscess the author probably means the chronic inflammation of the sac, the pus being furnished by its mucous membrane. The only accidents were in four cases: ptosis, which in three cases soon disappeared; in the fourth was accompanied by diplopia; in one there was smart conjunctivitis.

Partial removal the author found as effectual as total extirpation. The eye does not suffer for lack of moisture. The dacryo-cystitis, if it continues, is treated by injections of vin. opii. or argent. nitrat., gr.j-iv ad oz.j, twice daily.

In three cases acute abscess ensued after the gland had been removed; this the author regards as having hastened the cure of "the preceding chronic abscess." In two of these cases, which were under his own supervision, the nasal duct was made pervious after the operation. If the sac should continue to excrete pus freely after the gland had been removed and milder measures employed, the author *would obliterate it*. The mode of operating on the gland is described in detail. An incision in the skin, "below the upper and outer third of the orbital ridge," (length not stated,) go through fascia,

feel for gland with fore-finger, being careful not to push it into orbit; if not readily recognized "divide the external commissure of the lids by an horizontal incision outwards, to meet the outer end of the first incision," turn this flap inwards, pass a double hook along finger and pull gland out; when it is cut away, wait until all the bleeding stops, and then close wound with wire sutures.

(It may be fairly asked whether, if chronic dacryocystitis requires obliteration of the sac, it were not better to do this operation first and defer attacking the gland until the effects of the sac obliteration had been ascertained? In most cases this proceeding accomplishes all that extirpation of the gland is claimed to do.)

EYE-LIDS.

ART. 7.—*Sarcomata of all Four Lids.* [DR. SCHIRMER. *Klinische Monatsblät.*, v, 124.]

THE tumors were respectively 4", 3", 2" and 1" in height, and had been growing during 2½ years in a man 70 years old. They were solid, movable, and a little lobulated. They were found on removal to lie beneath the orbicularis muscle, and were composed of small cells, and a small proportion of connective tissue.

ART. 8.—*Plastic Operation on the Lower Lid.* [DR. KNAPP. *Archiv. fur Ophthal.*, XIII, i, 183.]

A CANCROID ulceration occupied the inner two thirds of the lower lid of a man 46 years old. To supply the defect after its removal, a flap was made by incisions; one splitting the outer commissure and going far back on the temple, and finally turning upwards, another incision of equal length, and parallel to the first, only that its outer end turned downwards. The flap loosened and slid inwards to meet by its inner end a corresponding vertical edge at the side of the nose. As represented in the diagram, the flap was 2½ inches

long. The interesting feature of the case is the amount of sliding performed and the good result attained.

CONJUNCTIVA.

ART. 9.—*Affections of the Conjunctiva in cases of Error of Refraction and Accommodation.* By DR. SCHIRMER. [Klin. Mon. Blätt. fur Aug. v, 114. 1867.]

DR. SCHIRMER calls attention to the importance of remembering that many cases of chronic palpebral conjunctivitis are in reality cases of error of refraction and accommodation, and the relief of the conjunctival disease is not to be found in astringents, etc., etc., but in the application of proper glasses. He cites some interesting cases, which might be paralleled in the experience of every ophthalmic surgeon. The point is one of eminently practical importance, and too often escapes notice. In no case ought one to make the diagnosis of simple palpebral conjunctivitis, without having carefully tested for hypermetropia, astigmatism, myopia, and inquired into the state of accommodation and of binocular vision.

ART. 10.—*The Action of Various Remedies on the Conjunctiva.* By DR. PROSOROFF. [Archiv. fur Ophth. XI, iii, 142-155.]

A most interesting series of experiments were made by Dr. P. on rabbits, to determine the exact effect and comparative influence of remedial substances on the conjunctiva. The *modus operandi* was to apply a certain substance, say nitrate of silver, to the rabbit's everted eyelid, and after certain intervals, to scratch off a little epithelium with a needle and examine it by the microscope. This investigation was made after the lapse of one quarter, one half, one, and two hours, and finally, three hours. At the first two examinations were seen swollen rounded opaque cells, with one, two, or seldom three nuclei, besides these, oval turbid cells

with one or two nuclei. In addition a quantity of normal epithelium and cells in process of proliferation, and still further, at a later time, cells assuming the characteristics of pus cells in various intermediate forms. After two hours the pus corpuscles were found mingled with all the cells above mentioned, and after three hours nothing appeared but pus. Precisely the same effects were produced by other substances, the only differences being in the rapidity and quantity with which the various cells were formed and the duration of their existence.

Substances which excited perfectly similar effects were nitrate of silver, corrosive sublimate, sulphates of copper and zinc, tannin, acetate of lead.

Certain other articles, such as alum, nitrate of potash, and carbonate of potash, excited nothing more than a great multiplication of cells and growth of nuclei. In three and a half hours nothing but normal epithelium could be found; pus at no time made its appearance.

Dr. Prosoroff divides remedies into two classes:

I. Such medicaments as excite the production of pus cells, viz.:

Corrosive sublimate.....	during	144	hours.
Nitrate of silver.....	"	50—52	"
Tannin.....	"	12—14	"
Acetate of lead (basic).....	"	11—14	"
Sulphate of zinc.....	"	10—11	"
Sulphate of copper.....	"	9—11	"
Acetate of lead.....	"	8—9	"

II. Such as cause the growth of free nuclei :

Nitrate of potash.....	during	3½—5	hours.
Alum.....	"	3½—5	"
Carbonate of potash.....	"	1—2	"

All of the above being in solution of gr.v ad oz.j.

Dr. P. found that substances were more effective in solution than when solid. A solution of nitrate of silver, gr.v ad oz.j, was equal to the mitigated stick composed of one part caustic to five parts nitrate of potash, and also equal to pure solid sulphate of copper. A

solution of sulphate of copper, or any substance, is reckoned as twenty times stronger than the solid crystal.

What are called astringents were not found to differ from so-called irritants; in all cases cell growth was set up, and the diminution in calibre of vessels, therefore, assumed a secondary importance.

A solution of nitrate of silver gr. v. ad 1 oz., is equal to
 “ tannin 18 4-7 gr. ad 1 oz.
 “ corrosive sublimate 1 23-36 gr. ad 1 oz.
 “ sulph. of copper 23 7-11 gr. ad 1 oz.
 “ sulph. of zinc 26 gr. ad 1 oz.
 “ acet. lead (basic) 18 4-7 gr. ad 1 oz.
 “ acet. lead 28 8-9 gr. ad 1 oz.
 “ merc. precip. rubr. 37 1-7 gr. ad 1 oz.

Dr. P. finally concludes that to cure a catarrhal inflammation it is not important what particular substance is chosen, but to choose the proper intensity and strength of solution of any of the above substances, according to the severity of the inflammation; for all owe their virtues to their irritative action.

CORNEA.

ART. 11.—*Tumor at Limbus Cornea.* Drs. LAINATI, CARLO, and VISCONTI ACHILLI. [Annales d'Oculistique, Tome lvii, May and June, 1867, p. 262.]

THE tumor was congenital, and the little girl only forty days old; it was situated in the right eye, overlapping both cornea and sclera, two thirds of it being on the latter. It was circular, the diameter of its base being five millimetres, its height two millimetres. It had a semi-cartilaginous consistence, and was covered with fine hairs. It was removed with little difficulty, and a week afterward the infant left the hospital.

On microscopic examination, the tumor was found to consist of connective tissue, whose upper layers were more dense than the lower, among these fibres groups of adipose globules, and an external envelope of epidermoid cells; the bulbs of hair follicles and sebaceous

glands were quite abundant, and one hair bulb was found which had on one side a cluster of sebaceous glands and the other a simple utricular gland, both opening into it. All these tissues belong to the skin, and the tumor must be regarded as originating in a perversion of development, from about the third month of foetal life, when the external skin covers the eye, and is afterwards transformed into conjunctiva.

IRIS.

ART. 12.—*Membrana Pupillaris Persisting after Birth.* [Monatsblätter für Augenheilkunde, vol. v, pp. 62, 119, 219. Dr. COHN, Dr. KEYSER, Dr. KORN.]

SEVEN cases of this anomaly are recorded, and Dr. Cohn calls attention to the literature of the subject, and remarks that very few authentic cases have been put on record, while the condition cannot be very rare. In most instances all that is seen are a few fibres running across the pupil and taking origin not from the pupillary edge but from the anterior surface of the iris at the *circulus minor*. These threads interlace with each other; they sometimes are attached to a patch of membrane of some size. The threads usually have a deep brown color. Sometimes the capsule is a little clouded. In all cases vision was defective.

ART. 13.—*Coloboma Iridis et Choroideæ.* [Ophthalmic Hospital Reports, Vol. v, part 4. 1866, page 322. M. S. WATSON. Klinische Monatsblatt. für Aug., Vol. v, page 85. Dr. SAEMISCH.]

THREE cases are reported: the cleft was downward, and in two cases reached, without interruption, to the optic nerve. In all these were traces of a persistent membrana pupillaris. Visual field was defective at the place opposite to the coloboma, and there was also imperfect direct vision.

ART 14.—*Remarks on the Diagnosis and Treatment of Iritis.* [By DR. R. SCHERMER. Klin. Monatsblät. fur Aug. v, 107.]

DR. S. calls attention to a symptom by which iritis can be recognized at a very early period, before synechiæ have formed, viz., the loss of polish of the surface. This is not identical with change of color, and can be recognized when the patient has but one eye. It is probably the result of loss of the epithelium. To this sign belongs considerable importance as giving an indication for the prompt use of atropia. Every one knows that if full dilation of the pupil can be attained, the inflammation will probably not be severe; it is, however, by many erroneously thought that that if the pupil fully expand there can be no iritis. To tear away synechiæ, Dr. S. calls attention to the alternate use of extract of Calabar bean and atropia, and Dr. Becker has done the same.

CRYSTALLINE LENS.

ART. 15.—*The perfect method of Extracting the Lens; dedicated to "Modified Linear Extraction."* By DR. ADOLPH WEBER, of Darmstadt. [Archiv. fur Ophthalmologie. B. XIII, Abth. i, s. 187-274.]

THIS paper is a searching monograph into the mechanical principles involved in getting the lens out of the eye, and how this may most easily be done. It is subdivided into the following heads. "The importance of the operation known as modified linear extraction; its disadvantages; their causes; the fundamental principle of every cataract operation should be to secure the spontaneous escape of the lens; causes of mishaps in flap extraction; an inquiry into the conditions which favor spontaneous opening of wounds of the cornea; a few words concerning tenometry; a new tenometer; experiments upon the gaping of corneal wounds; the linear section; the section by a lance knife; the semi-

circular section; resumé of experiments; advantages of a section at the edge of the cornea; the flat linear section; the lance for making this section; the author's proceeding; supplement."

We can only select a very few salient points. The escape of vitreous, before the lens appears, is one of the chief accidents of modified linear extraction. It then becomes imperative to use a traction instrument, and this often involves unpleasant results. Prolapse of vitreous does not happen so often in flap extraction, but there is very serious interference with the nutrition of the cornea, and the wound is very prone to gape. The author relates his experiments on gaping of corneal wounds, and few would be willing to repeat his careful and laborious methods. He contrived an instrument to measure the amount of pressure exerted on an eye, by a column of mercury. He found that the vitreous chamber and the anterior chamber do not constitute one cavity in a physical sense any more than they do anatomically, and that the "tension" of the sclera would always be in excess of that of the cornea. For moderate amounts of pressure this difference was as great as 9° upon the tonometer; for the greatest degrees of pressure the tension of the sclera and cornea became more nearly equal, but never quite alike.

A linear section at the base of the cornea, even when very small and under slight pressure, exhibits some retraction of the edges of the wound, and especially at its surface. The section may be 8 mm. long and the pressure 40 or 50 mm. of mercury, enough to make the lips of the wound open superficially to a width of 1 mm. before the deep edges cease to be in contact. If the section be extended to 10 mm. it ceases to be strictly linear and has the character of a flap, and will open under pressure of 30 to 40 mm. of mercury; when pressure reaches the maximum, viz., 180 mm. mercury, the inner edges open to 1.5 mm., and prolapse of iris or vitreous is very liable to occur. The facility with which a wound opens is not influenced

either by the thickness or curve of the cornea, or by the presence or absence of the lens.

A wound by a lance-knife 10 mm. long resists a pressure of a column of 125 mm. of mercury without opening. When the wound was enlarged to 11 mm. it opened at a pressure of only 40 mm. of mercury. In this kind of wound the cornea is cut quite obliquely, the breadth of the cut surface is from 1.5 to 2 mm., and the inner edge of the wound is situated from 2.5 to 3 mm. from the inner edge of the sclera, and a trifle more distant from the attachment of the iris. An iridectomy was always made at the time of extraction, and there still remained of the iris a zone 3 to 3.5 mm. in breadth.

With a semi-circular section, whether inside or outside the margin of the cornea, a displacement of the flap appeared without pressure; under a column of mercury 10 mm. high the flap rose so as to separate the edges, and when the mercury reached 20 mm. the separation was 2.5 to 3 mm. wide; at 50 to 60 mm. pressure the flap became creased, and vitreous gushed out. The hyaloid is able to withstand a pressure of 50 to 60 mm., but when it has ruptured, vitreous continues to flow until the mercury has fallen to zero. This is true of all kinds of wounds; even the smallest linear wound has no advantage when once the hyaline has burst. Separation of the lips of a wound occurs in two ways, first, as simple retraction of the edges, in consequence of the elasticity of the tissues; secondly, as pouting, or protrusion of the edges, the result of pressure. The linear section shows the least tendency to gape by pouting of its lips, and the section by the lance-knife has the least disposition to retraction of its edges. The semi-circular wound is the readiest to open, both by retraction and by pouting.

The retraction of the tissues does not completely open the wound, when made with the lance-knife, until it equals one fourth the circumference of the cornea, which gives a length from end to end in a straight line

of 8.46 mm. The diameter of the cornea is taken at 12 mm.

The indisposition of a linear section to open spontaneously, even under the greatest internal pressure, is because the wound coincides with a great circle of the globe, and the internal pressure acts in the direction of radii to the surface; so that the edges of the wound can be sundered only when the section departs from the path of a great circle. A wound by the lance-knife falls in with a lesser circle of the globe, or crosses these circles obliquely, hence it would be expected to gape from internal pressure very quickly; and the reason why it does not do so until the wound has become equal to almost one third the circumference of the cornea is believed by Dr. Weber to be, because the area of the inner surface of the flap, as we must call it, is so much less than the area of its outer surface, the tissue being cut obliquely.

The next inquiry relates to the situation at which it is best to make the section in order to facilitate the escape of the lens? The diameter of the cornea being 12 mm., the diameter of the lens 9 mm., and the breadth of the cut edge of the cornea being 1.75 mm., double the last, making 3.5 mm., take this from the diameter of the cornea, and we have 8.5 mm., which almost exactly corresponds with the diameter of the normal lens. Hence the cut being at the corneal margin, when the lens comes forwards, its equator is found in contact with the inner orifice of the wound, and in the situation most favorable to ready emergence; it has only to move straight upwards, (the wound being supposed to be above,) it needs no inclination forwards or backwards. The only hinderance after the capsule is opened is the iris, and when this is excised nothing stands in the way. The anterior chamber is quite deep enough to permit this incision; according to Helmholtz, the plane of the pupil is 3.79 mm. posterior to the centre of the cornea, and the section may easily and safely be made in a circle parallel to the cornea, and 1 mm. posterior.

The next question is, what must be the length of a wound to allow the passage of a lens 9 mm. diameter, and thickness of 4 mm.? This problem is solved by mathematical formulæ, and the result is 10 mm. which must be the measurement on the *inner* face of the cornea.

The wound, furthermore, must coincide with a great circle, that is, be linear. The disadvantages belonging to the linear wound, made by Graefe's knife, the author ascribes to the perpendicularity of its edges; he proposes a wound with edges more oblique, but otherwise the same as Graefe's wound. To make such a cut he employs a lance-knife 10 mm. wide at 6.5 mm. from its point, and 10.23 mm. long, concavo-convex, the blade forming with the shaft an angle of 120°. The hollowing out of the back of the knife gives a cut whose extremities run back into the sclera 1 mm. from the cornea, and whose apex is to be exactly at the limbus. The inner edge of the wound has been found by measurement to be 3 mm. from the attachment of the iris, and the thickness of the cornea as divided to be 1.75 mm.

The author does not always make iridectomy, but the most interesting part of his experience relates to the delivery of the lens. He uses a broad fixation forceps to seize the conjunctiva close to the corneal edge, and diametrically opposite the middle of the wound—at the middle of the wound he places a "shovel," transversely oval, 7 to 10 mm. wide, its front edge thin, moderately convex, and not turned up. At the beginning of the manœuvre for expulsion he gently yet firmly presses with each instrument, in a line towards the centre of the globe, the operator holding both instruments. The wound begins to open, and the lens, freeing itself from the capsule, pushes into the opening; as soon as its edge gets over the posterior lip of the corneal wound, the pressure with the forceps is changed from a perpendicular to a tangential direction; thus the sides of the lens are more directly thrust into the wound. The pressure must be steadily increased until the transverse diameter of the lens has passed the wound, when it slips

into the "shovel." The pressure is not yet to be fully let up, especially that made by the "shovel." The wound must be kept open until the pupil is perfectly cleared of cortical matter. When this is accomplished, and not before, the instruments are withdrawn from the eye.

Other details are given, but the value of this paper consists in the exact appreciation of mechanical and anatomical principles on which it is based. The author's preference for a lance knife may not be generally accepted, but the incision which he proposes has very strong support in reason and experience. It is the same incision which Prof. Graefe now makes, with greater obliquity in the cut edges. The instruments and method for delivery are novel, and suppose an exact adaptation of the wound and of the lens to each other. A manœuvre similar in its *vis expellens* is now employed by Graefe, who uses a hard rubber spoon which he draws gently over the cornea from below, where the fixation forceps takes hold, upwards toward the wound, its pressure being at first perpendicular, and as the lens moves, being made at a tangent to the surface.

In respect to the operation for cataract, the following references may be made. There is not space enough for their analysis.

Klinische Monatsblätter für Augenheilkunde, vol. v, pages 272, 279, 283, 284, 296.

Archiv. für Ophthalmologie, Band XIII, Abt. i, Seite 85.

One Hundred Cases of Modified Linear Extraction, Dr. Knapp.

Ophthalmic Review, part 11, pages 239, 251, 352.

Ophthalmic Review, part 12, pages 372, 379, 398.

Erfahrungen und Studien über die Staaroperation in Zeitraum der Jahre 1861-1867. Dr. Ph. Steffan, 1867.

Deutsche Klinik. Form of Cataract Knife. Kuchler, 872.

CHOROIDEA.

ART. 16.—*Tuberculosis of Choroid*. [Archiv. für Path. Anat. und Physiologie, Bd. xxxix, Mai, S. 49-69. DR. J. COHNHEIM.]

THE writer made careful autopsies of seven cases of tuberculosis, and in six found miliary tubercles

in the choroid. They ranged in size from less than 1 mm. to 2.5 mm. in diameter. They had precisely the same features as ordinary miliary tubercles. Dr. C. does not sustain the view that they come from the fibrous coat of the capillaries, but believes they originate from certain pale small granular nucleated cells which resemble pus cells, and are found in variable numbers in the choroid. In the larger nodules the adjacent pigment is increased to a dark ring, in the midst of which the tubercle shines with a yellowish color. Prof. Graefe and Dr. Leber have in one case recognized tubercles in the choroid a few days prior to the patient's death.

ART. 17.—*Metastatic Suppurative Choroiditis*. [Archiv. fur Oph., Bd. xiii, Abth. 1, S. 127-185. Prof. H. KNAPP.]

A DETAILED account is given of three eyes from two patients who died of puerperal fever. The suppurative process began in the choroid and ended in panophthalmitis. A careful examination was made of all the tissues under the microscope, revealing pus in them all, and other products which are too much detailed to be described. The author's view of the steps of the morbid process, is as follows: Embolus and occlusion of the choroidal capillaries, then hyperæmia, hæmorrhage and suppuration. The overlying plane of vessels becomes similarly involved; the retina becomes lifted off by effusion, suppuration attacks its connective tissue, also the vitreous, ciliary body, and iris; hypopyum appears; the lens may partake of the suppuration, and finally the sclera, orbital tissue, and lids. If the patient survive, certain regressive changes occur. The globe gets smaller and soft, the cornea may or may not be clear, the iris and capsule are adherent, the lens recovers a degree of clearness, and so may the vitreous; one may see a yellowish reflex at the fundus with the naked eye, and this is the degenerate retina separated from the choroid.

The same lesions occur, and with considerable frequency, in cerebro-spinal meningitis.

ART. 18.—*Glaucoma*. [Ophthalmic Review, Part xi, pages 257–267, by RAINY and WINDSOR. Also in Klin. Monats Blät. für Aug. v, S. 224. DR. KORN.]

Glaucoma in Eyes which have had the Lens removed. [Klin. Monats. für Aug. v, 147. DR. HEYMANN.]

THE case recorded is unique in many points. The subject was a girl with congenital cataracts, these removed when she was 16; at 21 she had a fall, and following this acute glaucoma in right eye, which in four weeks caused total blindness; this having lasted ten days, iridectomy was done; the iridectomy was complicated by escape of vitreous; the wound healed with a bulging scar, a staphyloma; vision but imperfectly recovered; visual field perfect. This state remained the same for three years, then she was one day exposed to intense light from snow, which greatly dazzled her. Immediately there followed periodical attacks of blindness, deeper in the right than in the left eye, lasting ten minutes, when sight would return. This happened six or eight times in one day. By atropia and moderate antiplogistics, temporary improvement ensued, but within a year the eye became blind. This state went on for twelve weeks, the right eye extremely hard, media clear, optic nerve deeply excavated. Dr. Heymann finally excised the staphyloma, including a portion of the iris, which was atrophied and covered by false membrane. At this time sight was wholly extinguished, and eye was very painful. Twelve hours after the operation, when the bandage was removed, sight was restored so as to see the hand and large objects, though the field was narrow. The field of vision at length reached its normal limits on the outer side, but inwards did not go beyond the vertical meridian. For nine months sight remained the same, and then attacks of obscurations again came

on, and the visual field began to diminish. The case is still under observation.

ART. 19.—*De l'Ophthalmie Glaucomateuse, son Origine et ses divers Modes de Traitement.* [Par le DR. LEON BELLOC. Paris, 1867.]

THIS is a resumé of our knowledge and the theories on this subject. It is valuable, but contains nothing original.

RETINA.

ART. 20.—*Traumatic Amblyopia of Retina.* [Klin. Monatsblät. für Aug. v, 126. DR. SCHROETER.]

A BOY aged 15 was struck in the right eye by a bit of steel. Besides a small ulcer on the cornea he was found to have central congenital cataract from $1\frac{1}{2}$ to 2 mm. in diameter. Had lately had an attack of typhus fever. Two weeks after the accident the keratitis had almost disappeared, the pupil very active, but vision extremely bad. Atropine was used and central vision found to be 1-200, the visual field at eighteen inches distance to be no more than four or five inches across. By modifying the light with pale blue glass central vision became 1-10, and the visual field expanded to ten or twelve inches. By ophthalmoscope nothing abnormal to be seen, except great fullness of the veins. Treatment consisted in bandage, darkened room, nourishing diet, lactate of zinc, gr.ij, daily. In three weeks sight amounted to one fourth, which was all that could be anticipated because of the cataract; the visual field normal. This case is regarded as one of simple concussion of the retina.

ART. 21.—*Amaurosis Saturnina—Recovery after Subcutaneous Injection of Morphia.* [Klin. Mon. für Aug. v, 224. DR. HAASE.]

PATIENT had well marked lead colic, from which he

recovered perfectly. After six years another attack came on, with violent abdominal pains. On the ninth day, as the colic pains diminished, a sudden loss of sight ensued, which in twenty-four hours became total blindness. He was then examined and found to have perception of light, pupils rather large and sluggish, retinal veins dilated, no paralysis of muscles, has a disagreeable sweetish taste in the mouth, a blue line along the gums. Patient had been taking opium, and this was continued. After six days sight was enough better to enable the patient to go out of doors alone. Visual fields normal; nothing abnormal in urine; nothing to be seen by the ophthalmoscope. Sulph. Morphiae, gr. x-6 was injected under the skin of the temple daily, with rapid improvement, and after a week $\text{v.} = \text{3}$. This amount of sight patient retained, and there remained an inability to distinguish colors as exactly as before. So he had to give up his business as painter.

ART. 22.—*Hemiopia, following Meningitis.* [Klinische Monatsblätter für Augenheilkunde. v, 88. DR. ALEXANDER.]

PATIENT, a female, aged 29, healthy in appearance, examined Nov. 23, 1866. Three years before, says she had inflammation of the brain, which was actively treated, and disappeared entirely in course of a few months. She says that immediately afterwards, sometimes outlines of objects appeared indistinct, and at other times she could see only part of a large object at once. This trouble increased, and became more defined, so that now she sees nothing that is situated to her left. Accommodations and refraction normal, or nearly so. Pupils somewhat sluggish, equal in size. Ophthalmoscopic appearances normal, except that retinal vessels are a little smaller than usual. Examination of visual field shows complete paralysis of the outer half of the retina in the right eye and the inner half of the retina in the left eye. There is, therefore, complete paralysis

of the right optic nerve, caused by some pathological change—probably the result of meningitis—situated in the course of the nerve at some point between its exit from the cerebrum and its junction with the nerve of the opposite side.

ART. 23.—*Hemiopia, from Tubercle in Chiasm of Optic Nerve.* (Autopsy.) [Klin. Monatsblät. für Augenheilkunde, v, 166. DR. J. HJORT.]

PATIENT, male, 44, examined Jan. 12, 1867. Complained that three months before, sight suddenly became confused, and, after a few days, was unable to see clearly anything situated to his left, though direct vision was good. At same time he had pain in head and partial deafness in right ear. Left ear had been deaf for some years. Never had syphilis. Had often been exposed to sudden changes of temperature. Upon examination of visual field of right eye, the outer half of retina found completely paralysed, and inner half affected so that objects appear indistinctly. Vision 1-50. Left eye, inner half of retina completely paralysed, this being marked by a sharp, perpendicular boundary line; vision 1-5. Patient complained of violent exacerbating pains in neck and head, especially in right temporal region and behind right ear. Pupils sluggish, particularly the right, which was the larger of the two. In right eye, partial paralysis of oculomotorius. Ophthalmoscopic appearances: right papilla white, margin sharp; left papilla congested, margin indistinct; no symptoms of mental disturbance. For three weeks general condition of patient good, with gradual increase of local symptoms above-named. On February 2d delirium came on, which disappeared in a day or two; no increase in the paralysis. On the 10th symptoms became worse. On the 15th the right pupil was much larger than the left; symptoms of right facial paralysis; unconscious most of the time; involuntary evacuations; extremities not paralysed; pulse had risen

from 88 to 100. For a week pulse increased, and there was diarrhoea; other symptoms same as before. On the 22d patient became worse; pupils strongly contracted; pulse 144; respiration 48. Apparently no paralysis of the extremities. Death occurred at 8 p. m. Treatment had been local blood-letting; counter-irritation on neck and behind the ears; hypodermic injection of morphine; and, internally, iodide of potassium, and later, bromide of potassium. The autopsy showed miliary tubercle in the pia mater, as usual in the middle portions around the chiasm, posteriorly toward the pons, in the fossa sylvii, sulcus anterior, etc., with serous exudation; also, a few tubercles on the convexity of both hemispheres, and serous effusion in the ventricles. In the right half of the optic nerve chiasm was a mass of tubercle the size of a hazel nut, with irregular surface as if composed of smaller confluent tubercles, greenish-yellow in color, softened in the centre, and surrounded by a thin layer of semi-transparent atrophied medullary substance. Right optic nerve smaller than left, partially transparent. Right tractus opticus flat and thin, but of normal, opaque color. Tuber cinereum pressed to the left. In the cerebellum was a tubercle the size of a pea, softened in the centre, situated in the vermis superior, just over the arch of the fourth ventricle; and another, the size of a hemp seed, lying firmly upon the upper surface of the right hemisphere, towards the anterior border. There was also a small echondrosis prolifera clivi, which had perforated the *dura mater* and adhered to the arachnoid. In the lungs was a quantity of miliary tubercle, mostly recent. There was adhesive pericarditis with miliary tubercles, and tubercle in the liver, kidneys, and capsule of the spleen.

ART. 24.—*Hemeralopia*. [There are twenty-four cases reported in the *Gazeta Medica de Lisbona*. No. 11. v. xiii, June 1867. p. 287.]

ART. 25.—*Traumatic Coloboma of Iris and Rupture of Retina.* [Reported in Klin. Monatsblätter für Augenheilkunde. v, 160. DR. DOHMEN.]

ART. 26.—*Retinitis, Morbus Brightii.* [Klin. Monatsblätter für Augenheilkunde. v, 221. DR. ALEXANDER.]

PATIENT, male, 36, examined February, 1867. Contracted syphilis six years before, and had secondary symptoms, of which he says he was perfectly cured. One year ago noticed indistinctness of vision in right eye, which rapidly increased, so that at the time of examination v. = 1-20. Same difficulty commenced in left eye three months ago, v. = 1-5. Right visual field smaller than normal; left normal. Patient pale and anæmic; slight œdema of under lids and hands. Heart enlarged; endocardiac murmur present. No syphilitic symptoms except a few pigment spots on the body, a hard cicatrix on the corona glandis, and a few enlarged inguinal glands. Urine, quite abundant, sp. gr. 1010, with very large quantity of albumen, under microscope shows granular casts. Iris and lens normal, and action of pupil good in both eyes. The ophthalmoscope showed in right eye a change in the posterior part of vitreous humor resembling a curtain covered with minute dots, through which the retina could be seen with difficulty. The whole retina, as far as could be seen, was hazy, and there were small hæmorrhages, which near the macula lutea had run together, forming larger patches. Veins tortuous and enlarged. Near the nerve was a large white crescentic patch under the retinal vessels. The left eye gave nearly the same picture, though not so marked, but vessels were normal; posterior part of vitreous contained many floating opaque bodies.

The retinal changes formed a well-marked picture of albuminuric retinitis, but the change in the vitreous was exactly that described by Jacobson as occurring only in syphilitic retinitis; and the interesting question

in the case was, whether the disease was a mixture of these two forms of retinal trouble.

ART. 27.—*Retinitis Pigmentosa with Retinal Hyperæsthesia.* [Klin. Mon. für Augenheilkunde. v, 229. DR. G. HAASE.]

PATIENT, male, 51, healthy, had noticed failing of sight since his 21st year, (said he had always been near-sighted,) and for four years past had not been able to bear the daylight, so that he had to be led around. After sunset could see much better. When examined could count fingers with either eye at 1½ feet distant. Visual field greatly diminished in size, especially upwards and outwards in both eyes; in right, also, upwards and inwards, and in left downwards and outwards. Pupils sluggish; normal in size. Optic nerves atrophied and oval in form; arteries thin. Periphery of retina showed the characteristic pigment deposit. Patient was found to see better in a darkened room, or through very dark-blue glasses. After confinement to a dark room for some days, and after having worn the glasses for some weeks, patient was able by daylight to count fingers at six feet with right eye, and four feet with left, and in a room partially darkened, at fourteen feet with right and eighteen feet with left. This improvement was probably of short duration, being merely the result of removing strong light, which was so irritating to the retina. Case interesting, because generally patients with retinitis pigmentosa can see well only by strong light, and as a rule complain of not being able to see after sunset.

OPTIC NERVE AND BRAIN.

ART. 28.—*On Defects of Sight in Diseases of the Nervous System.* [A very interesting article. London Oph. Hosp. Reports. Vol. v, December. p. 251-306. By DR. HUGHLINGS JACKSON.]

ART. 29.—*On a Group of Cases of Optic Neuritis in Children.* [London Oph. Hosp. Rep. Vol. v, p. 307. By JONATHAN HUTCHINGSO.] And in the same number of Hosp. Reports, a *Report on Cases of Congenital Amaurosis*, by DR. HUTCHINGSO.

ART. 30.—*Nerve Paralysis.* [Cases selected from Mr. Dixon's out-patients. Lon. Oph. Hosp. Reports, Vol v, p. 353.]

1st Case. "Complete paralysis of the left fifth nerve as regards sensation; motor function unimpaired; lachrymal gland active; impaired taste and smell; superficial ulceration of the cornea; suspicious symptoms as regards syphilis." Reported by Mr. W. Square, Clinical Assistant.

2d Case. "Partial paralysis of left fifth nerve, both of its motor and sensory functions; history of epileptic fits and of pain in the parts supplied by the nerve now paralyzed; impaired taste and smell; ulceration of the cornea; doubtful diagnosis of syphilis." M. Square.

3d Case. "Blindness with white atrophy in one eye, with paralysis of third and fourth nerves on same side; occasional hemiopia and failure of sight in the other eye." Reported by Mr. Warren Fay, Clinical Assistant.

L'Événement Médical, November 9, 1867, contains an article by J. SICHEL, entitled "Nouvelles recherches pratiques sur l'Amblyopie et l'Amaurose causées par l'abus du Tabac à fumer, avec des remarques sur l'Amblyopie et l'Amaurose des Buveurs."

ART. 31.—*Optic Neuritis.* [London Oph. Hosp. Rep. Vol. vi, 50. Seven cases.]

1st Case. "Optic neuritis in connection with constitutional syphilis." Patient, male, 34, had twice had chancre and a rash, twelve years before and three years

before. About the time of the last chancre, had pains in shin bones, head, and shaft of humerus. For last six months had nearly lost his memory, and for some time previous to examination had suffered severe pain in left eye-ball, some pain in right, and pain in forehead. When admitted to hospital had severe pain in forehead and could not sleep at night. Ophthalmoscope showed nerve discs pink in color, veins large and imbedded in margin of disc; arteries small; discs surrounded by recent extravasations; right disc ill-defined and much congested; vision not tested accurately; patient was occasionally seen reading; iodide of potassium mixture ordered. At end of six weeks left hospital; no pain; memory perfect; did not notice that sight failed him; both discs white and fluffy-looking; retinal vessels appeared normal.

2d Case. "Optic Neuritis in connection with constitutional syphilis—hemiplegia." Patient, male, 39, intemperate, had primary syphilis ten years before, followed by secondary symptoms; was salivated. One year before had a fit which left him hemiplegic, left side; has since had more than fifty fits, which begin in the left hand, and which at first affected left side of body only, but later both sides. Has suffered from frontal headache. Three months ago sight in left eye became misty, and six weeks afterwards the right eye was affected in same way. At examination, vision very imperfect; reads only large print at eight inches. Ophthalmoscope shows left disc white in color and woolly in appearance: vessels diminished in size and hidden in white material, occupying whole of disc. Left eye about the same, vessels smaller. Treated for two months with iodide and bromide of potassium, when he left hospital free from headache, and with scarcely any paralysis.

3d Case. Very much like the preceding one. These three cases were reported by Mr. Frederick Mackenzie from hospital practice of Dr. H. Jackson.

4th Case. "Optic neuritis in connection with ter-

tary syphilis." Patient, male, 41, unhealthy. Sight had been failing for six months. Had syphilis twelve months before, followed by secondary and tertiary trouble. Reads No. 16, Jaeger. Optic discs ill-defined; veins large and interrupted at various places; no extravasation.

5th Case. "Optic neuritis in connection with mercurial poisoning." Patient, male, strong and stout, engaged in the manufacture of calomel. Four months before had been taken ill with pains in the limbs, headache, staggering, and liability to fall, and sometimes inability to stand. Sight commenced to fail five weeks ago, and in a fortnight he became quite blind. Pupils dilated and motionless; media clear; optic discs ill-defined, prominent; vessels pushed forward by effusion, and in some places interrupted. One week after admission to hospital was delirious at night; severe headache. In the course of a month had improved, except in vision. Exudation had cleared off in a somewhat diagonal direction, from within outwards, leaving a perfectly white surface; veins large, artery small; margins of discs still jagged. Reported by Mr. W. Square.

6th Case. "Symmetrical optic neuritis in connection with lead poisoning." Patient, female, 19. Two years ago had commenced working in a lead mill. Four months ago was admitted to hospital with lead colic and paralysis of extensor of wrist. She recovered and went back to work. Fourteen weeks ago was attacked by severe pain in back of head; vomiting frequently greenish matter; indistinctness of vision. At the end of five weeks, became rather suddenly blind. Pupils large and fixed; general aspect of confirmed blindness; complains of numbness in tips of fingers; discs show usual condition of neuritis, and near them are numerous small apoplexies. Reported by Mr. Warren Tay.

7th Case. "Symmetrical optic neuritis in a child without the usual history of severe illness." Patient, boy of 7, healthy and intelligent. Six months ago the

mother noticed that he could not see objects handed to him, and that he sometimes ran against things. This grew worse. During the whole time had not been laid up in bed; no sickness or headache; appetite good; pupils normal size and acted well. He could spell out No. 20 Jaeger better with right eye than left. Optic discs of a dirty gray color; margins obscured; some morbid changes at macula lutea; vessels diminished in size, especially the arteries. Reported by Mr. Warren Tay.

DISEASES IN ORBIT.

Epithelial Cancer of the Orbit. [Oph. Hospital Reports, vol. V, part iv, December, 1866, pages 336-345.]

Cases of Orbital Sarcoma for Completing the Extirpation of which the Caustic Zinc-paste was used without injury to the Eyeball. [Ibid. Vol. V, part iv, 1866, page 345. J. W. HULKE.]

Aneurism in Orbit—Operation—Recovery. [Ophthalmic Review, xlii, page 355. J. Z. LAWRENCE.]

Enucleo-dissection of Eyeball. [Annales d'Oculistique, lviii, 56. J. SICHEL.]

MISCELLANEOUS AFFECTIONS.

ART. 32.—*Gummy Tumors of Eye.* [Archiv. fur Ophthal. XIII, i, 65-75. DR. HIPPEL.]

A PATIENT, 45 years old, had eye trouble seventeen months after the primary sore; this got almost well, and so remained for six months, when inflammation again took place, and in both eyes. The left eye had simple iritis; the right was invaded by a tumor which occupied the inner and anterior portion of the globe, and affected the sclera, iris, ciliary body, choroid, and retina. The globe was enucleated, and the tumor showed all the microscopic as well as gross appearances of a gummy neoplasm. It was rather soft and pale, and rich in small, round, nucleated cells, like lymph corpuscles; some were undergoing fatty degeneration. There was very little connective tissue, and a large quantity of blood vessels. The normal elements of the tissues had completely disappeared. While the portion of the tumor which sprang from the iris, cho-

roid, and retina was soft and brain-like, that in the sclera was firm and fibrous.

ART. 33.—*Herpes Frontalis*. [Ophthalmic Hospital Reports, vol. VI, part i, September, 1867, 1-11. MR. BOWMAN.]

NINE cases of herpes are recorded which broke out on the forehead, and usually along the distribution of the supra-orbital nerve. The eruption was attended by severe pain of a neuralgic type, and frequently the eyes became inflamed. In some cases the pain was very persistent; in one female, aged five, for six years. The eye troubles were usually keratitis, conjunctivitis, sometimes iritis, in one case there was atrophy of the optic nerve.

To relieve pain, Mr. Bowman in two cases divided the supra-orbital nerve; once without benefit, and in the other case with good results.

Two more cases of *Herpes zoster frontalis* are given in Oph. Hosp. Reports: vol. v, part iv, p. 331-2, 1866; one by Mr. Hutchinson, in which no eye trouble occurred; the other by Mr. Paget.

ART. 34.—*Cysticercus in Eye*. [Oph. Hosp. Reports, vol. V, iv, 1866, page 318-320. By MR. TEALE.]

A WOMAN, aged 45, applied to Mr. Teale with strabismus and very defective sight of right eye. She had squinted since infancy, and sight had always been the same. Mr. T. found a cysticercus in the right vitreous, just behind the lens in the axis of the eye. Could read eight of Jaeger, and eye in other respects healthy. Patient was occasionally examined during two years and no change whatever took place. On the advice of Mr. Bowman, Mr. Teale decided not to meddle with the eye.

Mr. T. has also had another case of this parasitic disease, and this time the animal was on the iris. The patient was a girl ten years old, and for six weeks the

mother had noticed the speck on the iris. There was acute kerato-iritis when Mr. T. saw the eye, and he performed iridectomy, removing the animal intact, relieving the inflammation, and restoring the sight. He gives two sketches, one of the iris, with the cysticercus in situ, the other the head of the animal under the microscope.

A similar case is given by Dr. Kruger in the *Klin. Monatsblätter für Augenheilkunde*, vol. v, 59, 1867. Extraction with iridectomy was successfully performed.

The following pamphlets have appeared :

Ueber Krankenhäuser besonders Augen Kliniken, von Dr. J. H. Knapp, Professor in Heidelberg. Heidelberg, 1866.

[Concerning Hospitals, and especially Eye Clinics.] 8vo. pp. 112.

Lehrbuch der Ophthalmoscopie von Dr. Ludwig Mauthner. 1 Abtheilung, Wein, 1867.

[Text Book of Ophthalmoscopy; by Ludwig Mauthner, first part, with 42 wood cuts. Vienna, 1867.] 8vo, pp. 306. (To be completed within this year.)

Die Lehre vom Binocularen Sehen, von Edward Henry. Erste lieferung. Leipsic, 1868.

[The Theory of Binocular Vision; by Edward Henry, Professor of Physiology and Medical Physics in the Joseph Academy, Vienna.] 8vo, pp. 156, first part. (The second and third parts, which will complete the work, will appear during 1868.)

Untersuchungen der Augen von 10,060 Schulkindern, nebst Vorschlägen zur Verbesserung der den Augen Nachtheiligen Schuleinrichtungen; von Dr. Herrmann Cohn.

[Examination of the Eyes of 10,060 School Children, with Suggestions for Correcting such Arrangements in Schoolrooms as are injurious to sight; by Dr. Herrmann Cohn, Oculist in Breslau.] 8vo, pp. 170. Leipsic, 1867.

"Ophthalmoscopische Beobachtungen," von Dr. Med. Albrecht Mooren, Düsseldorf.

[Ophthalmoscopic Observations by Dr. Albrecht Mooren.] 8vo, pp. 347. Berlin, 1867.

Varia.

SUICIDES IN VIENNA.—[In the *JOURNAL* of last February, page 397, we published an account of the suicides in Vienna for the year 1865. A comparison of that statement with the following will show a remarkable uniformity, both as to numbers and the means chosen by the two sexes for self-destruction.]

"The number of deaths which came under the cognizance of the Vienna Sanitary Police during 1866, amounted to 749, and these consisted of 95 deaths from

suicide, 125 from accidents, and 529 sudden deaths and deaths from unknown causes. There were 95 undoubted suicides, being 14 less than in 1865, and of these 36 took place by hanging, 25 by poison, 13 by precipitation from heights, 9 by firearms, 6 by sharp instruments, 5 by drowning, and 1 by inhalation of illuminating gas. As to the ages at which the suicides occurred, the most frequent were between 20 and 30 and 40 and 50 (each 23 cases), next between 30 and 40 (19), and between 50 and 60 (18). Between 60 and 70 there were 6; from 14 to 20, 5; and above 70, 1. There were 69 males and 26 females, May being the month in which the greatest number (18) took place, and September that of the fewest (3). As already remarked in former reports, while in the females the number who committed suicide by poison (9) exceeded those who did so by hanging (5), among the males the number who hanged themselves (31) was double that of those who poisoned themselves (16). As to the mode of poisoning, this was accomplished in 10 (8 males, 2 females) by cyanide of potassium, in 6 (2 males, 4 females) by sulphuric acid, in 3 (1 male, 2 females) by phosphorus, in 2 (1 male, 1 female) by soap-lees (*Laugenessenz*), in 1 by corrosive sublimate, in 1 by prussic acid, in 1 by strychnine, and in 1 by opium, all these being males. All the deaths caused by firearms occurred in men, as did those from sharp instruments, with one exception."

MONGREL ASSOCIATION.—Misery, it is said, makes strange bedfellows. This has been strikingly illustrated lately in Philadelphia, where a meeting was held, it is stated, of "Allopathics, Homœopathics, and Eclectics," who, having amicably agreed to discard sectional names and adopt that simply of physicians and surgeons, formed themselves into an association, which, with characteristic modesty, they have styled "The National Medical Association of the United States of America."

NEW YORK MEDICAL JOURNAL:

A MONTHLY RECORD OF
MEDICINE AND THE COLLATERAL SCIENCES.

VOL. VI.]

MARCH, 1868.

[No. VI.]

Original Communications.

ART. I.—*Amputation at the Knee Joint.* By THOMAS M. MARKOE, M.D., Surgeon to the New York and Bellevue Hospitals; Adjunct Professor of Surgery in the College of Physicians and Surgeons.

IN the New York Journal of Medicine for January, 1856, I published an account of ten cases in which amputation at the knee joint had been performed in the New York Hospital, together with eight other cases that had been operated on, in various parts of the country, by American surgeons. These, collated with the recorded experience of foreign surgeons, presented a total of forty-six cases, and seemed to indicate, if not

to prove, that amputation at the knee joint was, in many cases, to be preferred to amputation higher up; a preference which was based upon two principal features, namely, first, the superiority of the stump left by section through the joint; and, second, by the greater safety and success of the amputation at this point. My attention has, since the date of that paper, been constantly directed toward this subject; and as our experience has accumulated new reasons for confidence in the safety of the operation, it has also given us the opportunity of observing the performance of the stumps during several additional years of service; and has, I think, fully vindicated the original appreciation of the operation.

Compared with amputation through the thigh—and, of course, it is only with this operation that it should ever be placed in competition—I think that several important facts have been, by our experience, fully and satisfactorily demonstrated:

1st. I think it is no longer doubtful that the ancient prejudice against the operation, and the objections to it, on the ground of the danger of opening so large a joint as the knee, are unfounded, at least in the degree to which they are practically important. It will be seen, by glancing over the cases, that in no instance has the remaining portion of the synovial membrane assumed any formidable inflammation; and though, in several instances, inflammation and suppuration have indeed taken place, they have presented no features of peculiar severity or danger; nothing, in fact, essentially different from similar abscesses, which are liable to occur in all

amputations wherever made; and have in no case proved more intractable, or more troublesome, than in stumps made in the continuity of the limbs. I am indeed disposed to believe, reasoning *à priori*, that, inasmuch as the muscular interspaces of the thigh are not opened at all, and those of the leg cut so as to leave mere shallow culs de sac, there should not be the same liability to the spread of inflammation up the thigh, nor so great a tendency to suppuration burrowing upward, when that inflammation does occur. And, furthermore, the cases presented seem to prove that the cartilaginous surface of the femur presents no troublesome complications in consequence of its exposure. In most of the cases, the flaps once covering the cartilage from sight, we have heard no more from it; and in those instances where, from sloughing or scantiness, the flaps have not completely covered its surface, it has either gradually taken on granulative action, and blended with the surrounding tissues, or if exfoliation of any part of the cartilage has taken place, it has been a limited action, rapidly completed, without disturbance of the healing processes going on around it, and leaving a healthy granulating surface, which has healed as well, and almost as quickly, as the other parts of the stump.

2d. There seems good reason to believe that the shock to the system, and the demand upon its reparative power, is less in the amputation at the knee joint than in amputation higher up. The mere fact of the section being further from the trunk is generally accepted by surgeons as diminishing the mortality in amputations; but over and above this, the knee joint section

is essentially a simpler one, as far as tissues are concerned, than section through the muscular bellies of the thigh. In fact, with the exception of the heads of the gastrocnemius, and the insignificant popliteus muscles, there is nothing cut, in the knee joint operation, but skin and subcutaneous areolar tissue, and a few small tendons of the femoral muscles. All the central portion of the wound consists of the uninjured articular end of the femur, which, as far as vital actions go, seems to play a part entirely passive and quiescent, showing, as above stated, no disposition toward any unfavorable or embarrassing accidents, while, at the same time, it takes a prompt and kindly part in the necessary healing processes.

3d. The condition of the stump, during the progress of the cure, is more favorable and less distressing to the patient than one made through the thigh; and mainly for two reasons. First, the muscles moving the thigh bone being all uninjured, the stump can be handled and moved by the patient himself with extraordinary facility and comfort. It is well known by practical surgeons, that the first dressing of a thigh stump is one of the most painful manipulations of surgery; and a large share of the pain arises from the raising of the limb and holding it while the dressings are removed and reapplied; a process which, under even the most skillful and rapid hands, requires considerable time for its proper accomplishment. This source of suffering scarcely exists in the knee joint stump; and nothing surprised me more than to see how easily these patients could raise and hold out their stumps, for the first dress-

ings, with little or no assistance, and apparently with very little pain or distress. In some instances, the patient has asked as a favor that he should be allowed to raise the limb himself, as he found he could do it so much more comfortably than it could be done for him. This feature of the knee joint stump recommends it as a good amputation in military surgery. I have been able to get no experience on this point, but I am convinced that such a stump would render transportation of the wounded man much more tolerable, and much less liable to serious injury, than when it is composed of muscles cut across the middle of their bellies. Second, and for the same reasons, no retraction of muscles can take place, by which the coverings of the end of the bone can be drawn upward, and the sawed end of the bone left exposed ; so that if the flaps have been properly cut in the first place, such exposure can only occur from sloughing, or from the most unpardonable carelessness in the dressings.

4th. The bone being unwounded in the knee joint amputation, is not subject to the troublesome and dangerous accidents which sometimes follow the application of the saw, and the exposure of the medullary membrane to the air, and to the foul secretions of the suppurating surface. Of these accidents we have, first, the death of a ring of bone at the point of saw cut, which, though trifling in itself, interferes with the prompt healing of the wound, and often necessitates a painful and perhaps repeated manipulation with the forceps for its removal. More extensive, more tedious, and in every way more serious than this, we have the necrosis

of the inner tube of the shaft, forming the tubular sequestrum, which is often for months the source of so much distress and danger, and which requires for its removal an operation which is, in some cases, only less serious than a reamputation. And still worse than either, we have the unhealthy and pyemic inflammations of the cancellous and medullary tissues of the bone, which produce the varied phenomena, and the grave and often fatal symptoms, which characterize the formidable disease known as osteo-myelitis. All these depend directly upon the mechanical violence done to the bone by the saw, and the subsequent exposure of the medullary membrane; and it is not too much to say that these serious dangers belong exclusively to amputations in the continuity, and do not occur in amputations through the joints, where no injury is inflicted upon the bone.

These considerations, fortified by the observation of a considerable number of cases, have led me to the conviction that the knee joint amputation is in itself a better and safer one for the patient than amputation of the thigh; a view which statistics, now tolerably extensive, fairly confirm. But if this intrinsic superiority of the operation at the knee be judged "not proven;" if it be insisted on that it is no better and no safer, it has, in the excellence of the stump which it leaves, a claim for preference, which I think nothing should defeat but the ascertained fact of its being more dangerous and more fatal than amputation through the thigh. No one who has seen such a stump, and observed its performances, can have a moment's doubt as to its very great

superiority over any stump which can be made in an amputation higher up the limb. I first saw one of these stumps in the person of a man in the New York Hospital, who had been amputated years before in Florida, at the knee joint. By the broad end of the femur, which was covered with simple integument, free from tenderness or excoriation, this man could bear his whole weight directly on a pad, in an ordinary wooden peg leg, and could with ease walk ten miles a day. The immense practical importance of this fact can only be appreciated by those who have paid some attention to the mode of operation of the different mechanical arrangements for supplying lost limbs. In all amputations through the shaft of the femur, it is perfectly well understood, that no pressure from the apparatus can be borne on the end of the stump, and that therefore, no bearing can be had on this end, which can in any degree contribute to supporting the weight of the body. This is equally true in amputations of the leg in its continuity; and, in all these cases, the problem to be solved is, so to distribute the pressure, that single points shall not suffer. This is accomplished, when the amputation is below the knee, by allowing the stump of the leg to be received into a very carefully padded, thimble-shaped cavity in the upper part of the leg-piece, so arranged that the pressure is received at the point where the tibia and the fibula suddenly enlarge to form their upper articular extremities. The sides of the conical cavity in the leg-piece receive the sides of the stump, but without any pressure on the end of the stump. In order to diminish this pressure on the sides of the stump, and to

distribute the points of support over a greater surface, there is also a firm leather thigh-piece, in which, by means of a tight lacing, the thigh is firmly supported on all its sides, up as far as the trochanter; and thus a considerable part of the weight of the body is taken off from the stump below. The thigh piece and the leg-piece are united by a hinge at the knee. By thus taking advantage of every available point of support, both on the sides of the leg and on the sides of the thigh, the apparatus for leg amputations is made to be a very perfect, and a very comfortable substitute for the lost member; and it is wonderful to observe how easily and naturally some patients are enabled to walk with their artificial limbs. But it must be evident, at the same time, that the adaptation of a limb to a thigh stump is a very different and a much more imperfect thing. Here, the only support which can be got from the thigh, is from the sides of the upper or trochanteric portion; for any lateral support gained from the sides of the lower portion must necessarily so drag upon the end of the stump as soon to become intolerable. In this amputation, it is impossible that the stump should sustain any considerable part of the weight of the body, and advantage is therefore taken of the fixed points of the pelvis and of the trochanter—which is here, in one sense, rather a part of the pelvis than of the thigh—to afford the necessary assistance. Thus, divided between the trochanter and the tuberosity of the ischium, the weight of the body is mostly received on the pelvis itself, the stump being used mainly to give the forward motion to the artificial limb in walking; and the patient sits, as

it were, in a cushioned ring, which receives the pressure from the upper part of the thigh and from the tuberosity of the ischium. As a result of this contrivance, the patient walks like one who has ankylosis of the hip joint; the motions of progression being made mainly at the sacro-lumbar and intervertebral lumbar articulations. This mode of progression, though the best that can be attained, is not only ungraceful but laborious; and no patient with a thigh amputation can ever be made to walk great distances. In the knee joint stumps, all this machinery for gaining points of support from the sides of the limb is unnecessary. The broad end of the stump bears the whole weight of the body with perfect comfort, and no side pressure is necessary, except for the purpose of steadying the limb. In one case in which I amputated at the knee in a child about 2½ years old, the little thing could travel about the floor all day, walking on the sound knee and the stump, the stump being entirely unprotected by any padding; and when she became a little accustomed to an artificial limb, seemed to use one leg about as well and with as little fatigue as the other. In another case, that of a young woman, who did not feel able to afford an artificial limb, I found her several years after the amputation walking with her original peg leg, the end of the stump resting on a large excavated surface on the top of the wooden leg, which was not very carefully shaped to fit the stump, because it had been intended to be well padded, to receive the pressure of the end of the femur. This padding she had gradually come to neglect altogether, and now was walking miles every day with the end of

the stump resting on the wooden surface, with no protection but a few old cloths which she wrapped round it. It was perfectly hard and sound, and she assured me that it gave her no inconvenience. Mr. Fergusson, who has of late years advocated rather strongly the knee joint amputation, gives a wonderful instance, in which he says that one of his patients, with an indifferently padded common peg leg, could walk forty miles a day; and that on one occasion he had actually been known to walk one hundred and twenty miles in three successive days. This fact alone, that the end of the stump in knee joint amputations will bear the whole weight of the body with ease and comfort, is, in my judgment, sufficient to entitle it to a preference over any thigh amputation, even if it could be shown to be no more successful as far as regards the life of the patient. That it is really a more successful operation, as far as mortality is concerned, the considerations presented above give us good reason for believing; and the statistics which I shall presently offer warrant us, I think, in positively asserting.

The following is a brief report of all the cases which have come to my knowledge since the publication of my former paper. I have doubtless omitted many, but it has been because I have not known of their existence. No selection has been practised, and no authentic report rejected.

CASE I.—Cath. Schoomaker, æt. 22, admitted into the New York Hospital Sept. 11, 1856, with chronic disease of the knee joint. The leg was amputated at the knee joint, after Mr. Symes's plan; the diseased

cartilaginous surface of the femur being sawed off so as to leave almost the full breadth of the expanded end of the bone. The patella, being diseased, was removed, and the entire synovial sac above it, which was much thickened, was dissected out. She recovered rapidly, and with a stump so serviceable that several years afterward I found her able to walk many miles a day, the end of the stump bearing on a very poorly padded socket of a common peg leg.

CASE II.—Joanna Stagg, æt. 3, brought to New York Hospital Jan. 3, 1856, with right leg crushed under a city railroad car. She was amputated by the long posterior flap, containing a large portion of the gastrocnemius muscle. Great swelling of the stump took place, requiring all the stitches to be cut. She was in collapse when brought in, and though reaction was procured before amputation, it was not well sustained, and she sank and died six days after the injury.

CASE III.—Jno. Frazer, æt. 19, brought into New York Hospital April 11, 1856, with railroad injury of right leg so disorganizing it as to require amputation. This was done at the knee joint by the long anterior and short posterior flap. Prostration very great. The ends of the flaps sloughed, and reaction was not sustained. He died on the 15th.

CASE IV.—George Anderson, æt. 38, in the New York Hospital Aug. 25, 1856, with compound fracture of left leg, from being run over by a carriage. An attempt was made to save the limb, and it was put up in the double inclined plane. Violent traumatic delirium supervened, and for two days he was uncontrollable, doing his limb much injury by his frantic movements. By the 3d of September, the storm had passed over, and he became rational and quiet, with a fair pulse, but with a hot skin, tremulous muscles, and dull intelligence. A smart rigor occurred on the evening of

the 3d, and on the 4th, arterial hæmorrhage to the extent of twelve ounces. Under these unfavorable circumstances, the limb was removed at the knee joint. It was done in the usual manner, and almost without loss of blood. He rallied for a few hours, but soon began to sink, and died twenty-two hours after the operation.

CASE V.—Caroline Hohe, æt. 30. Amputated at New York Hospital Dec. 9, 1856, for long-standing and extensive ulcers. A very long anterior and short posterior flap were made. Her condition was unfavorable from great anemia and constitutional irritation. Pulse 120. About an inch of the anterior flap sloughed. Suppuration took place of the synovial sac above the patella, somewhat retarding the cure. She finally did well, and was discharged with the stump firm and sound, and promising to bear pressure very well.

CASE VI.—Richard Nutt, æt. 42; New York Hospital, Oct. 15, 1857. This was a case of disease of the knee joint of two years' standing. The limb was amputated at the knee, and the femoral condyles were found so free from disease that they were left untouched. The flaps were rather short. Hæmorrhage took place in the evening of the operation, making it necessary to open and leave open the surface of the wound. This allowed the already too short flaps to retract, leaving the end of the femur exposed. It became necessary to amputate higher up, which was done on the 26th of February. He died exhausted nine days after the second amputation.

CASE VII.—A young man, æt. 19, presented himself at the clinique of the College of Physicians and Surgeons, with a tumor of the leg of a doubtful character. It was amputated at the knee joint April 18, 1857, in the usual manner. No bad symptoms supervened, and he recovered rapidly, with a good stump.

CASE VIII.—Morris Griffin, æt. 30, admitted to New York Hospital December 13, 1857, having been run over by a fire engine, which severely crushed both legs below the knee. He had lost much blood, and was so greatly prostrated that amputation was not deemed justifiable until the 15th, when reaction being in some degree established, the left limb was amputated at the knee joint. The usual flaps were made, but the condyles of the femur being found injured, were removed about an inch above the articulating surface. The other limb was placed in a fracture box. No effective reparative actions were established. The stump did not unite, and looked sloughy, and no proper suppuration took place. He gradually failed, and died January 1, 1858.

CASE IX.—A laboring man, æt. 58, was treated in Bellevue Hospital in September, 1858, for a bad compound fracture of the left leg, which involved the loss of several inches of the middle of the shaft of the tibia. Some hopes were entertained of saving the limb until the 1st of November, when, from the extensive suppuration and failing powers, amputation became necessary. This was done at the knee joint, in the usual way. The wound healed without accident, and he was discharged cured March 1, 1859.

CASE X.—A boy æt. 14, was amputated at the knee joint, at St. Luke's Hospital, for extensive necrosis of the leg. The operation was done in the usual manner, on the 29th December, 1860. No bad symptom showed itself in the progress of the cure, which was complete in May, 1861.

CASE XI.—A soldier of the Sixth Vermont Regiment was brought into the Hygeia Hospital, Fortress Monroe, wounded at Lee's Mills, by a piece of shell, which buried itself deeply in the upper part of the leg, wounding the posterior tibial artery. After the remo-

val of the fragment, secondary hæmorrhage took place, making it necessary to amputate the limb, which was done at the knee joint. Everything seemed to promise well, but on the second day gangrene seized on the end of the anterior flap, which spread steadily and destroyed his life on the fifth day after the amputation.

CASE XII.—John M'Farley, æt. 7, was admitted into the New York Hospital, June 27, 1862, with severe injuries from being run over. The left leg was crushed nearly to the knee joint, and the right foot was hopelessly mangled. He was a delicate and sickly boy, and had lost a great deal of blood. He was therefore in a state of extreme depression. By great care and perseverance, reaction was procured to a degree that seemed to warrant an amputation of the worst limb at the knee joint. For some days after the operation, he absolutely refused to take any food, and was nourished solely by enemata. At the end of a week, he seemed to improve a little, but on the 9th of July, sloughing began in the anterior flap. This process spread steadily and he sank exhausted July 19, 1862.

CASE XIII.—Paul Brownson, æt. 13, came into St. Luke's Hospital, September 20, 1861, with a necrosis of left tibia, so extensive as to require amputation. He was much reduced by his disease, and the operation was delayed, with the view of improving his condition, until the 26th November, when the limb was removed at the knee joint, by a short anterior and long posterior flap. The cure proceeded very rapidly, and was not interrupted by the exfoliation of a piece of cartilage about an inch long and a quarter of an inch wide, which came away while the wound was healing. The stump was perfectly healed January 1, 1862.

CASE XIV.—Claudius Best, æt. 14, admitted to St. Luke's Hospital November 26, 1861, with necrosis of right tibia. The extent of the disease, as well as the

deformity produced by the bending of the bone, close up to the knee, made it proper to remove the limb at the knee joint, which was done on the 17th December. Inflammation of the synovial cul de sac took place, terminating in abscess, which remained open, discharging a nearly clear synovial fluid, until the 1st of February, when it closed. By this time the stump was entirely and soundly healed.

CASE XV.—Julius Myers, æt. 18, was brought into the New York Hospital, September 3, 1862, with a compound fracture of the right leg, with other injuries. The leg was so much shattered as to require immediate amputation, which was done at the knee joint, in the usual manner. From his numerous injuries, he was in a feeble condition, and suffered much. Little or no union took place, and abscesses formed in several spots. His progress was therefore slow, but he finally did well, without any special accident to the stump, and was discharged cured December 9, 1862.

CASE XVI.—Christian Weber, æt. 47, was admitted into the New York Hospital, September 16, 1862, with a bad compound fracture of the right leg, for which amputation at the knee joint was performed soon after his admission. His progress was satisfactory until the twelfth day, when hæmorrhage occurred from the wound, which was by this time almost united. This recurred once or twice, making it necessary to open, and leave open, the wound. No further accident occurred; the wound healed slowly, but soundly; and he was discharged cured November 25, 1862, with a promising stump.

CASE XVII.—Adam Miller, æt. 39, with severe injury of leg, was admitted to the New York Hospital, October 9, 1862. Amputation at the knee joint was performed, the next day, in the usual manner. The flaps were made about equal in length on account of

the contusions. On the 12th hæmorrhage occurred, and on the 13th for a second time. The stump was opened and an artery tied. He continued to fail, however, and died on the 15th.

CASE XVIII.—A young woman at St. Luke's Hospital, who had been operated on May 25, 1861, for the extraction of a loose cartilage from the knee joint, found the knee so weak and tender, and therefore so useless, that, about a year after, she anxiously desired to be rid of the limb. It was removed at the knee joint, in the usual way. The stump healed rapidly and perfectly, leaving her, when fitted with Palmer's leg, able to walk very much to her satisfaction.

CASE XIX.—Edgar Carter, æt. 23, was brought to the New York Hospital, February 23, 1863, with his leg severely crushed by being caught between the ferry-boat and the dock. It was amputated at the knee joint the next day. The wound did badly; considerable sloughing took place; erysipelas supervened, and he finally died March 22, 1863.

CASE XX.—John O'Brien, æt. 4. Brought to the New York Hospital, January 7, 1863, with the left leg crushed by the wheel of a railroad car. It was amputated at the knee joint, with a very long anterior and very short posterior flap. The wound did well, though a considerable piece of the long flap sloughed away, leaving the condyles exposed. Adhesive strips were arranged, as described hereafter, so as to draw down, with a weight over a pulley, the integuments of the thigh, and thus the covering of the exposed condyles was secured, and the final satisfactory healing of the stump. He was discharged cured.

CASE XXI.—Henry Agnew, æt. 34, received into the New York Hospital, March 12, 1863, with extensive injuries of the left leg, from being caught in some

machinery. Hoping to save the limb, amputation was postponed until the 21st, when it became the only chance of saving life. It was done at the knee, in the usual manner. For a few days he seemed to be doing well, until the 25th, when he became feverish and delirious at night. Uncontrollable diarrhœa set in, and chills occurring at irregular intervals. After each chill he became more violently delirious, and it was impossible to keep him from inflicting injury on his stump. The continuance of these symptoms gradually exhausted him, and he died on the 16th of April, 1863.

CASE XXII.—Lewis Baker, æt. 22, was brought to the New York Hospital with the left leg crushed by a railroad car, July 19, 1863. Amputation at the knee joint was performed. His progress was interrupted by a large abscess on the anterior part of thigh, but he was finally discharged cured, and with a good stump, November 23, 1863.

CASE XXIII.—Eliza Smith, æt. 40, was received into the New York Hospital, September 21, 1863, with a compound fracture of the left leg, which was followed by so extensive suppuration and loss of substance, that amputation became necessary. It was done at the knee joint, on the 8th of October, with a long posterior and short anterior flap. Sloughing of the anterior flap occurred, exposing the condyles, but by the use of the extension by adhesive straps, and the weight and pulley, the bone was covered and the wound soundly healed. Discharged, cured, February 16, 1864.

CASE XXIV.—John Short, æt. 24, brought to the New York Hospital December 5, 1864, with a compound fracture of the leg, from a railroad accident. Leg amputated at the knee joint by two nearly equal lateral flaps, as the condition of the integument made it necessary. He did well until the 13th, when hæmorrhage came on with such suddenness and severity,

that before the popliteal artery could be tied, he was so reduced that he died on the following day, December 14, 1864.

CASE XXV.—James O'Shaughnessy, æt. 3, was run over by a railroad car, March 6, 1864, receiving a severe compound fracture of the leg. Amputation was performed at the knee joint, with a long posterior flap, containing a large portion of the gastrocnemius muscle. The surface of the condyles was pared off by a scalpel. For a few days he did well, but on the 11th the surface of the wound looked sloughy, and he began to fail. He ran down rapidly, and died seven days after the injury.

CASE XXVI.—Jesse Newell, æt. 12, was operated on at St. Luke's Hospital, for necrosis of the tibia. From the extent of the disease, its proximity to the knee, and the great deformity it had produced in the limb, it was deemed best to amputate at the joint. This was done on the 26th of August, 1864, in the usual manner. Everything went on favorably, and when I saw him, nine days after the operation, he promised a rapid cure. He ultimately recovered.

CASE XXVII.—Jacob Bibby, æt. 32, had his leg crushed between a ferry-boat and the bridge, by which it was so severely injured that amputation was necessary. It was done at the knee joint, by Dr. Van Blarcom, of Paterson, New Jersey, with a large posterior flap, a method suggested by the condition of the integuments. The progress of the cure was rapid. A piece of articular cartilage, as large as a ten-cent piece, exfoliated; but this seemed scarcely to delay the healing of the wound, which was completely cicatrized in six weeks from the time of the operation.

CASE XXVIII.—Thomas Slennon, æt. 31, admitted to the New York Hospital, September 2, 1864, with

left leg crushed between two cars. Amputated immediately with the usual flaps. Everything went on well. Two abscesses formed during the progress of the cure, giving, however, but little trouble, and he was discharged with an excellent stump in November, 1864.

CASE XXIX.—Robert Jackson, æt. 44, was brought to the New York Hospital, September 6, 1864, with compound fracture of the right leg, which was attacked by erysipelas. As soon as the inflammation was sufficiently abated, the limb was removed at the knee joint. Inflammation and sloughing attacked the stump, and he died October 15, 1864.

CASE XXX.—John M'Tiernay, æt. 15, admitted to the New York Hospital, September 17, 1864, with compound fracture of the leg from a railroad injury. An attempt was made to save the limb, but amputation at the knee joint finally became necessary. Some sloughing occurred of the flaps, exposing the condyles. By steady traction with the weight and pulley, acting upon both flaps by adhesive plaster, the exposed bone was finally covered, and a very good stump resulted. He was discharged, cured, February 17, 1865.

CASE XXXI.—Dennis Caneely, æt. 11, brought into New York Hospital November 9, 1865, with railroad injury so severe as to require amputation of the leg. This was done immediately at the knee joint. Some sloughing occurred, but not enough to prevent the final healing of the wound, which was much facilitated by traction on the flaps as in the former cases.

CASE XXXII.—Dr. Robt. F. Weir, formerly of the army, sends me this case: "Robert Kelly was wounded August 18, 1864, by a minie ball, which entered on the outer aspect of the left knee joint, and lodged, as he states, in the head of the tibia. The limb was removed the same day at the joint by a long posterior flap,

the patella being left in situ. The stump healed in about six weeks." He was seen by Dr. Weir in April, 1865. "The stump was free from tenderness, and capable of bearing the weight of the body."

CASE XXXIII.—Jno. Barnes, æt. 20, was brought into New York Hospital with right foot torn off by being caught in a hawser. The lacerations were so extensive that immediate amputation was performed at the knee, in the usual manner. At first he did well, and the stump advanced far toward healing. On the 20th February, however, he had an attack of pleurisy with effusion, under which he gradually failed, and died March 17, 1865.

CASE XXXIV.—Robert Wintringham, æt. 41, admitted to the New York Hospital in August, 1865, with severe injuries of the right leg from being run over by the tender of a fire engine. An attempt was made to save the limb, but was soon abandoned, and on the 14th of August amputation at the knee joint was done. He died of tetanus on the 24th.

CASE XXXV.—Patrick M'Auley, æt. 56, brought into the New York Hospital July 1, 1866, with bad compound fracture of leg from jumping off rail car while in motion. Greatly depressed by shock. Amputated at knee joint three hours after admission. He failed much during the operation, and though he rallied somewhat during the following night, he gradually sunk and died on the 5th.

CASE XXXVI.—Is. W. Layman, æt. 27, came into the New York Hospital May 14, 1866, with severe crushing of left leg from being caught between two tow boats. An attempt was made to save the limb, but inflammation and sloughing were so destructive that it was amputated, June 12th, at the knee joint. The flaps being scant, the condyles of the femur were sawn

off about an inch above the joint. Inflammation and abscess of the synovial sac took place, but he made a good recovery, with a good prospect of a useful stump.

CASE XXXVII. — James Fitzgerald, æt. 29, admitted into the New York Hospital December 18, 1865. His left leg had been amputated, about a year before, for an inconvenient ankylosis of the knee. The stump had behaved badly, and had never healed. Amputation at the knee joint was performed on the day of admission. Stump healed kindly, and he was discharged cured Jan. 20, 1866.

CASE XXXVIII. — Dr. W. H. Van Buren sent me an account of a case in which he amputated at the knee joint, in February, 1866, in a little girl, æt. 10, for osteo-myelitis of tibia, from a fall upon the ice. The oval method was employed in making the flaps. The recovery was slow, but complete, with a well formed stump.

CASE XXXIX. — Melville Olyphant, æt. 31, admitted to New York Hospital April 16, 1867, with disease of knee joint, which had supervened on an old ankylosis. Amputation at the joint was performed on the 22d, with the usual flaps. The joint was extensively diseased, cartilages ulcerated, articular lamella bare, and in spots necrosed. The surface of the condyles was removed by the saw. The patella, being firmly adherent, was left. His progress was at first rapid, but was afterward delayed by an abscess in the popliteal space. He finally recovered, with an excellent stump.

CASE XL. — Frank Stone, æt. 14, brought to the New York Hospital May 14, 1867, with a crushed leg from a rail car injury. Though he was much prostrated by the injury, the leg was amputated at the knee joint. His recovery was slow. Some sloughing of the

flaps took place, but, by the extension plan, he recovered with a good stump.

CASE XLI.—Edward Toner, æt. 35, admitted to the New York Hospital, with severe injury of the left leg from the falling on it of an iron pipe. An attempt was made to save the limb, but at the end of a month it was amputated at the joint. He made a good recovery.

CASE XLII.—Thomas Courtenay, æt. 30, admitted to New York Hospital October 30, 1867, with severe compound fracture, from being caught under a heavy truck which broke down. Amputation by the long posterior flap. He sank rapidly, and died during the night after the operation.

CASE XLIII.—Edward Brophy, æt. 21, brought to the New York Hospital October 3, 1867, with right leg crushed between the ferry boat and the dock. Amputation was performed, eighteen hours after admission, at the knee joint. Mortification attacked the stump, and he died seventy-two hours after the operation.

The following cases have been collected from the records of Bellevue Hospital.

CASE XLIV.—A little girl, æt. 10, was brought into the Hospital in August, 1866, with a bad compound fracture of leg, produced by being run over by a rail car. The limb was amputated at the knee joint, with the usual flaps. She made a good recovery, and was discharged cured about two months afterward.

CASE XLV.—Michael M'Donald, æt. 16, admitted August 13, 1866, with a crushing rail car injury of leg. He had lost much blood, and was much prostrated. Amputation was performed at the knee joint. No full reaction took place, and he died on the second day after the amputation.

CASE XLVI.—Margaret Baker, æt. 65, was brought in November 1, 1866, with a leg crushed under a loaded cart. She was amputated at the knee joint, the lateral flaps being adopted, instead of the antero-posterior. A slight slough and an attack of erysipelas somewhat retarded her cure, but ultimately she recovered with an excellent stump, in which the antero-posterior cicatrix, resulting from the union of the lateral flaps, was well protected between the two condyles of the femur.

CASE XLVII.—Elizabeth Munroe, æt. 71, admitted April 19, 1867, with symptoms indicating gangrene from embolus of the left leg. At May 21st the gangrene seemed arrested, and amputation at knee joint was performed. Gangrene attacked the stump, and she died on the 26th.

CASE XLVIII.—James O'Shaughnessy, æt. 19, brought in August, 1867, with right leg crushed by a car wheel seven hours before. Very much depressed from loss of blood. Amputation at knee joint was done in the usual way. Slight sloughing occurred, but, by extension, the wound finally healed.

CASE XLIX.—Augustus Waterman, æt. 15, brought in August 19, 1867, with right leg crushed by a car wheel. Primary amputation at the knee joint was performed. The flaps proving short, the patella was removed. Sloughing took place, of the anterior flap, to so great an extent that, though he was doing very well in all other respects, it was necessary to reamputate through the thigh. This was done on the 7th of September. He died of a crural and abdominal phlebitis ten days after thigh amputation.

CASE L.—William Costello, æt. 9, brought in September 4, 1867, with extensive crushing of left leg. He was much prostrated from loss of blood and shock of

the injury. The limb was amputated at the knee joint by a circular incision. During the operation he failed very much, and at six o'clock of the same day he died.

CASE LI.—Dr. Robert F. Weir sends me the following case of double amputation, performed by him at St. Luke's Hospital: "S. D. Chase, æt. 25, was admitted Aug. 12, 1867, with severe railroad injuries of both legs. The left limb was amputated at the knee joint, by the long anterior flap. The right was removed at the usual point below the knee. The flap, in the knee joint stump, sloughed for two and a half inches; but, by the extension dressing, healing of the wound was accomplished, and a very useful stump has resulted. The other leg also did well, and he was discharged cured Oct. 10, 1867."

In addition to these cases, I have a verbal report from Dr. S. H. Tewksbery, of Portland, Maine, of four successful cases occurring in his practice. He has promised me the notes of these cases, but they have not arrived in time for this publication.

The experience which has thus accumulated, on this subject, begins to give some value to statistics founded upon it. We find in the above report, and in my former paper, seventy-three cases, occurring in American hospitals and private practice, embracing all that have come to my knowledge, and including Dr. Tewksbury's cases not reported. Of these seventy-three cases we have twenty-five deaths; making the rate of mortality on the whole number thirty-four per cent. The value of this statistical resumé depends upon its being compared with a similar statement as to the mortality of amputations of the thigh. Taking Mr. Philips's statements as a basis of comparison, we find

that of 987 instances of amputation of the thigh, collected from all sources, hospital and private practice, 435 died, a mortality of forty-four per cent., making a difference on the whole number of cases, of ten per cent. in favor of the knee joint amputation.

This general statement, however, seems to want precision, inasmuch as the sources from which the cases were collected were probably different in the two tables. A more precise comparison would be instituted by taking the cases occurring in one institution, when the conditions might be supposed to be nearly identical. Thus taking the recorded cases of amputation of the thigh at the New York Hospital, from the year 1830 to the year 1864, we have a total of sixty-one amputations and thirty-three deaths, or fifty-four per cent. Of the knee joint amputations, we have thirty-nine operations and twenty-one deaths, a mortality again of fifty-four per cent., exactly the same as the mortality of amputations of the thigh. This exhibit shows no advantage on the side of the knee joint operation, it is true; but I think some allowances are to be made, which will perhaps incline the verdict in its favor. I am myself quite conscious that the novelty of the operation; the interest which attaches to it, as one which is rarely resorted to except by our own surgeons, and still more, the anxiety to preserve for the patient the benefits of a knee joint stump, have sometimes biased my judgment, and led me to operate at the knee, when it would have been better for the life of the patient, to have amputated through the thigh. If these feelings have at any time had any influence upon my colleagues,

it would not be unfair to say, that our statistics do not actually represent the relative value of the two operations, but that, with all allowances made, the knee joint is the safer operation of the two. I have no right to claim this as proved, but I most confidently believe it to be true.

In respect to the value of a knee joint stump, so important a feature of the present discussion, I am happy to have my opinion fortified by the judgment of my friend Dr. E. D. Hudson, who has for so many years, and with so much ingenuity and success, devoted himself to the mechanical appliances which amputations and mutilations of all kinds render necessary. I give his letter entire.

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696 BROADWAY, NEW YORK, Jan. 23, 1868.

DEAR DOCTOR: I have the honor to comply with your request to communicate my knowledge of knee joint amputations, the result of my study and experience. It always affords me pleasure to contribute to every practical improvement in Surgery, based upon principles of anatomy and physiology. In all of such surgery, science, and humanity, are sure victors of prejudice and its evils.

The history of twenty-three cases of amputation at the knee joint, committed to my charge for surgical therapeutics, has furnished me with the most indubitable proof of the unbounded merits of that operation, compared with any amputation, be it ever so favorable, of the continuity of the thigh. The practical and beneficent result, in each of these cases, has been greatly superior to any that can possibly be realized from a thigh amputation, and establishes the operation, with me, as one of the greatest improvements of modern surgery.

The age of the respective cases ranges from fourteen to sixty years, and includes both sexes, and the various diatheses. The causes of the amputations were disease and destructive casualties, mostly the latter; hence the varieties of operation, determined by the condition of the parts in the immediate vicinity of the knee joint and the preconceived ideas of the operator. In a majority of the cases, long anterior and

short posterior flaps were made ; in other instances, the short anterior and long posterior flaps ; anon, antero-posterior flaps, united immediately across the base of the condyles. In some of the cases, the patella was removed ; in others retained. With the majority of the cases, the condyles were entire, in others sections of cartilaginous and osseous tissue were made ; and in one instance, the epiphysis was wholly removed beyond the line of the articular fossa.

With one exception cicatrization was complete. The exceptional case was treated prematurely, through importunity, but eventually became soundly cicatrized and serviceable. Thus of the twenty-three cases with their modifications, the final result was, and has continued to be, all that could be desired. No untoward event has occurred to occasion a regret that the amputation was made at the knee joint, as the alternative of a thigh amputation. On the contrary, every case furnished cause for gratitude that the amputation was not of the thigh in its continuity. Two of the subjects had suffered double amputations ; one at the knee joint and of the leg, the other one at the knee joint and of the thigh. In the latter case, the knee joint stump contrasted most significantly with the thigh stump, in its bearing and usefulness. It became the main dependence of the subject for his support and locomotion.

With such deductions, and improved practice in surgery, I have, since its early introduction, studied to arrange and adapt compensating appliances to sustain the operation, and realize for my patients the ultimate benefit of articular parts, as natural supports. Neither have I failed of the most perfect and gratifying success. When the condyles have not been mutilated in the operation, my principle of action has been to fill the articular fossa, even with the base of the condyles, with a triangular or well constructed elastic pad, to equalize the base of support and to insure comfort. The elastic pad is attached to a wide leather socket, which is skillfully shaped and adapted to the end and sides of the stump, and strongly attached to a light wood casement for the posterior and lateral parietes of the thigh. This encloses the thigh, which is retained in its place by leather bands, buckled or laced around its anterior aspect. It affords a very neat contour and finish, great strength, and an extra available leverage for propulsion. Thus the amputation and the artificial limb for it, in every feature, are important improvements, with which the thigh amputation and its practical results bear no satisfactory comparison.

The most perfect variety of operation that I have observed, has been

composed by the long anterior flap, with one exception. Recently my attention has been invited to an amputation at the knee joint, of an elderly woman, an inmate at the Bellevue Hospital, originated and performed by Dr. Stephen Smith. He made bilateral flaps, which covered the entire base of the condyles, and passed up posteriorly, securing perfect cicatrization, at the junction of the epiphysis and cancellated parts. His improvement appeared to me to perfect the operation.

The adage "Let well enough alone," should be strictly applied to the condyles, unless they are superficially diseased, in which event, a section involving a portion, or nearly the entire epiphysis will prove superior for service to any amputation of the femur in its continuity. To excise any portion of the condyles, for the specific purpose of enlarging their area of support, I regard as injudicious. The therapeutical appliance should supply every such desideratum.

Such, in brief, is a summary of my experience and reasons, cheerfully rendered, relating to one of the most important improvements of surgery. I am confident, that as the light of science rises, prejudice will yield to more enlightened views and practice, when knee joint amputations, and their kindred operations at the ankle joint, will precede both thigh and leg operations whenever the opportunity offers.

I am, very respectfully,

Your obedient servant,

E. D. HUDSON, M.D.

THOMAS M. MARKOE, M.D.

The cases to which this amputation will be applicable, will be those in which the choice lies between operation at the knee and operation above it. No case, I think, can justify amputation at the knee, if it can safely be accomplished below it. All such injuries of the leg as approach so near the knee as to preclude amputation through the leg; all such diseases of the bones of the leg as, without involving the knee joint, leave no sound portion of tibia available for a stump; and, lastly, a certain number of cases of diseased knee joint, when there is reason to believe that the end of the femur is

but little affected by the destructive actions; all these will present occasions for amputation at the knee joint, in which amputation of the thigh would be the only alternative. The class of cases last mentioned, namely, cases of diseased knee joint, seem to me to present a very important and a very interesting surgical question, in reference to the safety and advantage of amputating through the knee joint for diseases of the knee joint. Mr. Syme was the first to call attention to this subject in a communication published in the London and Edinburgh Journal of Medical Sciences in 1845. In this paper he announces it as his opinion that the thigh bone ought never to be divided in its middle compact portion, but always through the spongy substance of either the condyles or the trochanters. This opinion he has arrived at, from the consideration of the numerous accidents of osteitis, necrosis, and osteo-myelitis, which are admitted to depend on the fact of the bone being sawed through its central medullary, instead of its articular cancellated regions. In regard to this point of disease of the knee joint, treated by amputation through the joint, he says: "In regard to diseases of the knee joint, it is well ascertained that the warrant for amputation lies in the bone, and not in the soft parts, which, however altered through scrofulous degeneration or suppuration, readily admit of restoration to their natural condition, as is clearly shown by what happens after excision of the elbow or amputation at the ankle joint." He then goes on to propose amputation through the diseased joint, and gives several cases in which he has successfully performed it. Mr.

Fergusson has several times done the operation, as has also the late Mr. Jones, of Jersey, and both are warm in their advocacy of it, as, in certain appropriate cases, a sound and successful operation. I have once performed the operation, and with so gratifying a success that I propose to repeat it whenever a proper case presents itself. The patient was a young woman, aged 22, with a chronic disease of the knee joint, of about three years' standing. I removed the limb at the joint by a procedure which did not differ from the ordinary amputation at that point, except that a thin layer was removed from the surface of the condyles, and the ends of the bone smoothed off as carefully as possible by the bone forceps, so as to present nearly as broad and even a surface as that of the natural condyles. (This plan, I should remark, of sawing off the articular surface of the femur, is adopted, by several surgeons, as an advisable step in the ordinary amputation at the knee, where everything about the joint is free from disease or injury.) The resulting stump was as good and useful a one as I have ever seen. This case is published in detail in the New York Journal of Medicine for November, 1856. It is not easy to pronounce positively as to the cases of knee joint disease in which amputation at the joint is permissible, but in general terms it may be said that the operation at the joint should be confined to those cases where both the bone and the soft parts left in the stump are comparatively sound. In many instances the articular end of the femur is only superficially affected. Erosion of cartilage may exist; ulceration and necrosis of the articular lamella may

have made some progress; the necrosed plates may have separated, opening into the cancellous tissue above; and yet the morbid processes, though they have reached this destructive and hopeless extent, may not have involved the femur to a depth of more than two or three lines; and a section of a thin layer of the actively diseased surface may leave the bone tissue in a condition capable of prompt and healthy reparative action. If, with this condition of bone, we have the soft parts not undermined with abscesses; not perforated by many fistulous openings; not too much involved in the inflammatory thickening of the deeper soft parts; we have good reason to expect that the tegumentary part of the wound will granulate and heal at least as favorably as the sawed bone; and that, though we may not have a rapid, we will have a perfect cure. In cases, on the other hand, where the bone tissue is infiltrated with the strumous products of long-continued disease; or where the ravages of inflammation have reached parts far distant from the articular surfaces; or where the soft parts covering the joint are too much involved in the destructive process which has been going on; then the idea of amputation at the joint should be at once abandoned.

The mode of operative procedure is so frequently determined by the condition of the parts after the injury that, I doubt not, most surgeons will arrive at the same conclusions that have gradually forced themselves upon us, namely, that it is really of comparatively little consequence what particular method of cutting the flaps be adopted, provided only that enough

integument be left amply and easily to cover the expanded extremity of the femur. A miscalculation is easily made on this point, and it is one so vital that the greatest care should be exercised. The consequences of scantiness of flap, in this amputation, are more disastrous than in amputation through the continuity, inasmuch as if the flaps fail to cover the bone, in knee joint amputation, a reamputation is the only resource; whereas, in amputation through the shaft of the femur, where the end of the bone is not well covered, we can commonly, by a very simple manipulation, push up the granulating soft parts, and saw the bone at such a point higher up as will permit it to be properly covered, and the stump to be soundly healed. I would therefore earnestly recommend to every one who has not been in the habit of performing this amputation, to allow himself at least one third more flap than his eye judges to be necessary; he will rarely find it too much, and if it should prove redundant it is easily trimmed to fit; a procedure which, under ether, is of no importance, when it is considered how much is risked by want of original liberality in making the flaps.

We have been inclined to give preference to a long anterior and a short posterior flap; and for several reasons: 1st. A flap thus taken from the anterior surface of the leg brings a thicker, tougher, and therefore, probably, a more useful covering to the condyles, as far as bearing pressure and general rough usage is concerned, than one taken from the thinner, softer, and therefore more tender integument at the back of the knee. 2d. Such a flap throws the opening of the stump,

during the healing process, toward the back and lower part of the stump as the patient lies on the bed, and therefore gives ready issue to the discharges, and forms no pouch or pocket in which they will be likely to be retained. 3d. The ligatures are all or nearly all in the popliteal region, and therefore come to the surface more directly, when the line of junction of the flaps is thrown well back, than when it occupies any other position. 4th. The cicatrix, in this method of operation, is found to be at the posterior aspect of the stump, behind the swell of the condyles, and therefore better protected from pressure than it could be at any other point. For these reasons—as will be seen by glancing over the reported cases—the greater number have been operated upon by the long anterior and the short posterior flap. In several instances, where the injuries required it, a long posterior flap has been adopted. In some other cases, a circular incision has been made; and occasionally the most irregular shape has been given to the line of incision, as the contusions or lacerations extended higher on one side of the limb or the other. The most important modification of the operation, however, is that suggested and performed by Dr. Stephen Smith, Surgeon of Bellevue Hospital. He makes two lateral flaps of equal size, cutting them in such a way that the incision begins lower down in front than behind; so that when it is completed, the line of union of the flaps is thrown backward toward the popliteal region, and is entirely lodged in the deep fossa between the two condyles of the femur; and is thus, not only by its posterior position but by the projection of these condyles,

shielded from any risk of pressure. Inasmuch as this mode of operation fills all the other requirements for a good and useful stump, it seems to me to be the one to which hereafter I shall give a decided preference. This mode of making the flaps has, I think, another recommendation derived from their comparative length in the two cases. In the single flap, whether anterior or posterior, great length is necessarily given in order to cover the large expansion of the condyles. That this great length is a disadvantage, the numerous examples of sloughing, afforded by the records, most clearly show. The lateral flaps, by dividing equally the great length of the single flap, diminish just so much the danger of sloughing, as a short flap is more likely to maintain its vitality than a long one. But, whatever operation be selected, let it never be forgotten, that more flap is necessary in this than in any other amputation; and that a prime requisite of success is that the ends of the bone should be covered fully, easily, and without tension.

In making the posterior flap, whether long or short, the upper portion of the gastrocnemius muscle remains, and when brought forward, makes an unnecessary and unseemly projection at the back part of the stump. We have generally removed it entirely, so that the whole flap is composed of nothing but integument. This procedure, too, simplifies the wound, leaving it to present only the small cut ends of tendons, rather than the larger divided bellies of muscle.

There seems to be no good reason why the patella should be removed; and several good ones why it

should not. We have therefore always left it, and have had no reason to wish we had done otherwise. By the contraction of the quadriceps extensor, it rises upon the anterior surface of the femur from two to four inches above the joint, and there remains quietly, giving no trouble by its presence either to the patient or to the adapter of artificial limbs. In cases where the patella is injured, or where it is in a diseased condition, it may be advisable to remove it. This was done in several of our cases, and did not seem to add materially to the severity or danger of the operation.

By several surgeons who have written upon this subject, it is insisted on that the cartilaginous surface of the femoral condyles should be removed. This can be done with appropriate instruments, in such a way as to leave a very smooth, even surface of exposed cancellous tissue, very little smaller, and nearly as well adapted to bear pressure as when the condyles are left uncut. The practice is undoubtedly founded on a conviction that the cartilaginous surface of the joints is so unfavorably disposed toward healthy action in repair, that it is better to get rid of it, by its abscission, than to run the risks which its evil behavior in the stump is likely to superinduce. I think this view is an unfounded one, and the practice based on it unnecessary and unwise. The general fact that the synovial and cartilaginous surfaces of the joints, when exposed in amputation, have no tendency to interfere with the process of healing of a stump, is now by a large experience undeniably proved, for the small and for many of the larger articulations. In amputations, for exam-

ple, of the fingers, of the hand at the wrist, of the shoulder, and of the ankle, we have no apprehension of any trouble from this source, and we do not experience any. The cartilaginous surface once hid from view in the stump, we rarely hear of it again, either during the healing, or after the perfect cicatrization of the wound. This general fact has no exception in the knee joint. In the cases in which we have operated in the hospital, and in fact in almost every case embraced in this report, the condyles have been left unwounded, and in no case have we observed anything unfavorable to result from so doing. In several instances it has happened, that, from sloughing or retraction of the flaps, the cartilaginous surface has been exposed to view during a portion of the time occupied by the healing of the wound, and in those cases we have had an opportunity of observing its behavior and comparing it with that of the surrounding tissues. We have noticed that the cartilage underwent either a gradual transformation of its substance similar to that described by Mr. Redfern, as preceding its ulceration, out of which changed substance, granulations spring up, or else a proper necrosis, by which a layer of it is detached *en masse*, and comes away like a slough, or rather an exfoliation, in any other situation. The process is thus described in the notes of one of my early cases.

“Where the flaps were a little drawn apart by retraction, there was exposed to view about three fourths of an inch square of the cartilaginous covering of the outer condyle. At first it looked white and shining, like healthy cartilage, but gradually the peripheral por-

tion became converted into a soft pultaceous layer, of a greyish color, looking like soaked greasy leather. This change spread in about a week over the whole exposed surface, and in this soft substance granulations rapidly sprung up, which soon converted it into a florid suppurating surface. The exposed cartilage all underwent this change, except a small piece, about as large as a three cent piece, when the transformation seemed to go on under it, and between it and the bone, so that it was detached in a thin layer unchanged. This process was completed about the twenty-second day. The ligatures had all come away by the nineteenth day. On removing the loose sequestrum of cartilage on the twenty-fifth day, it was found to be connected with a larger piece remaining under the anterior edge of the wound. The whole was as large as a shilling piece, and came away easily, leaving a healthy granulating surface beneath."

The behavior of exposed cartilage has been watched in several other instances, and has presented phenomena so similar to those above described, that I am disposed to believe that it is what may ordinarily be expected to occur in the cartilage, when the rest of the wound presents an equally satisfactory progress, and that we may usually expect that the changes in the cartilage will go on rapidly enough to enable that tissue to take its part in the healing process without interference or delay. It seems, therefore, to me very desirable that the cartilage should be left untouched, and if for no other reason, because it leaves the bone unwounded, the cancellous tissue unopened, and therefore

less liable to all the accidents which are apt to happen to injured bone.

During the progress of healing there sometimes is found to be a tendency to retraction of the whole integument of the limb, so that flaps which are originally abundantly sufficient gradually fail to cover completely the end of the bone, leaving thereby a broad surface to cover with granulation. Now it is true that if the flap is properly fitted at the time of operation, this retraction, which is common to all amputations of the larger limbs, will only delay and not prevent the healing of the wound, but if the flaps should be originally scanty, or if, from sloughing, some portion should have been lost, then this gradual tendency to retraction becomes a serious matter, and may determine an unfavorable or an imperfect result, where we had good reason to expect better things. We have sought to obviate this difficulty by the use of elastic extension applied and steadily maintained upon the integuments of the stump. A broad strip of adhesive plaster is placed lengthways over the anterior face of the thigh, and descending in a long loop below the end of the stump, returns to be applied in a corresponding manner on the posterior surface, rising as high both before and behind as the level of the trochanters. One or two transverse strips may be applied to steady the longitudinal bands, care being taken not to make any circular constriction round the limb, or if the wound be further advanced in healing, a bandage may be applied which will give proper support to the adhesive straps. To the loop of adhesive plaster, which descends

below the stump, a cord is attached which passes down to the foot of the bed, over a pulley, and is attached to a weight after the method commonly used in making extension in fractures of the thigh. Some part of the extending cord should consist of india rubber, so that its elasticity may be availed of to equalize the action of the weight. By this apparatus, a steady force is brought to bear on the integuments of the whole limb, by which not only is the tendency to retract entirely obviated, but something may be actually gained in cases where the flaps are positively too short to cover the bone, without some such assistance. By this contrivance we have, in several instances, secured the sound healing of the wound under circumstances which seemed very unpromising, and where without it, a good result would not, apparently, have been obtained.

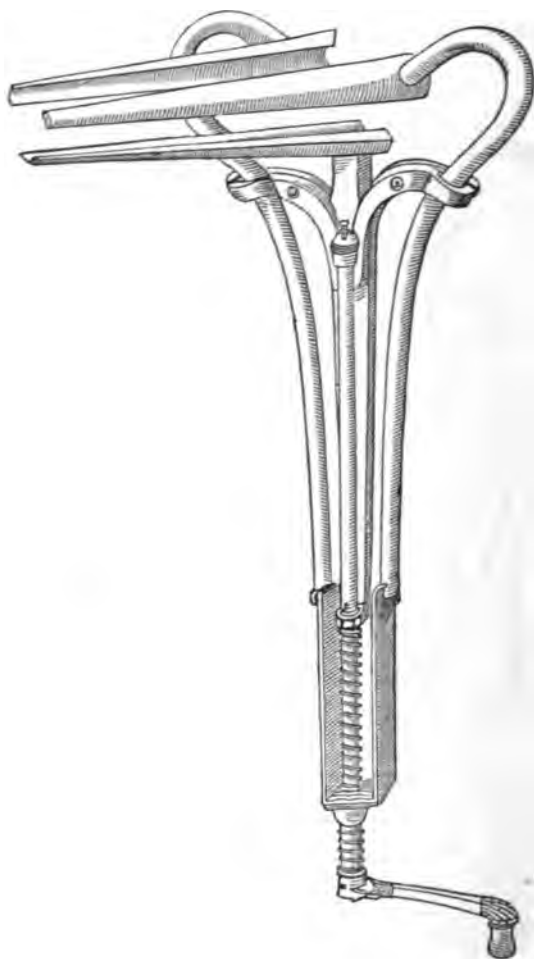
ART. II.—*Ancient Specula, and the Conical or Cylindrical Speculum of the Moderns.* By WM. R. WHITEHEAD, M.D., New York.

A GLANCE at some of the earliest specula known, may serve to form a proper appreciation of the excellences, or make more apparent the defects, of the modern instruments of this kind; and, at the same time, afford an occasion incidentally to offer a few remarks concerning the usefulness of the common round glass speculum.

In briefly alluding to some of the ancient specula, I propose to exhibit by wood cuts representations of two, which, from their remote origin and ingenuity of conception, are eminently deserving of notice.

Paul of Ægina, during the seventh century, was known for his knowledge and successful treatment of diseases peculiar to women, and described the speculum vaginæ under different names. Fabri-

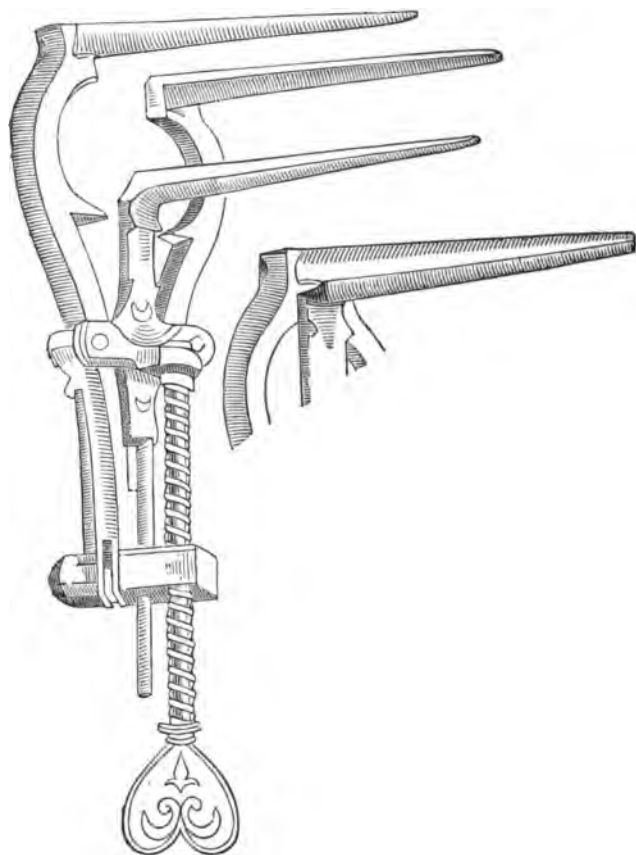
FIG. 1.



SPECULUM VAGINÆ, USED BY FRANCO, MORE THAN THREE CENTURIES AGO.

cius (ab Aquapendente), who wrote at a much later period, and was contemporary with Franco, held Paul in such high esteem as to rank him with Celsus ; and it is probable that the speculum attributed to Fabricius was either the same used by Paul, or suggested by his writings. Rhazis, in the tenth century, and Albucassis, in

FIG. 2.



SPECULUM USED BY AMBROISE PARÉ.

the eleventh century, described the speculum vaginæ, as did Paul of Ægina, under the names *DIOPTRA*, *TORCULUM VOLVENS*, etc. Several centuries later, Franco, Paré, Scultet, and others, adopted the word *Speculum*, which is now the one generally used.

Fig. 1 represents the speculum vaginæ used by Franco,* and which has been exactly copied from that surgeon's work. The instrument is sufficiently well exhibited to permit, by careful inspection of the drawing, to dispense with an explanation. Fig. 2 shows that used by Ambroise Paré,† and which may be seen in his work at page 997. The branches of this instrument were of the length of eight or nine fingers breadth; or proportioned to the age and size of the woman. These instruments were not essentially different from those found in the ruins at Herculaneum. They were somewhat similar to that of Paracelsus, in use during the early part of the sixteenth century, and were not very unlike that of Fabricius ab Aquapendente. The instrument of Fabricius,‡ however, had a cumbrous mechanism, with a right and left screw to move its three valves.

It is probable that Guillemeau, and afterward Mauriceau, Peu, and Viardel, were familiar with the speculum used by Paré; especially Guillemeau, the pupil of Paré, and the translator of his works into Latin.

The speculum vaginæ gradually fell into disuse, however, to be again revived during the first half of

* *Traité des Hernies, etc.*, par Pierre Franco. p. 399. Lyons, 1561.

† *Œuvres d'Amb. Paré*. Paris, 1628.

‡ See the *Armanentarium Chirurgicum* of Seerig, published at Vienna.

the present century, as it had been revived during the times of Franco and Paré.

Récamier, who gave a new impulsion to the use of the speculum, preferred a simple conical tube of polished metal to the more complicated instruments of anterior date. Dupuytren modified Récamier's instrument by causing it to be made shorter and having a handle added to it, which addition was not generally considered an improvement.

Madame Boivin recognized the inconvenience attending the relative narrowness of the vulva orifice of the vagina, when it became necessary to dilate the upper part of this canal.* Her speculum, however, failed to obviate this inconvenience; and in dilating the superior portion of the vagina, the branches of the instrument were as equally expanded at the vulva as at that portion, and pressed painfully on those parts it was not intended or desirable to dilate too much. Jobert conceived the idea of dilating the uterine portion of the vagina by means of a speculum, which should correspondingly diminish in calibre, at the vulva, as the distal extremity of the instrument expanded. His speculum was composed of two segments of an articulated cylinder hinged together not very far from their uterine extremity. Ricord modified the speculum of Jobert by causing the hinge to be placed near the vulva extremity, and by the addition of handles the manipulation of the instrument was made more convenient. The branches of this bivalve speculum dilated the vagina in its lateral portions, and

* See Article on Speculum, Dict. de Méd, en vol. xxx.

permitted of operations on either the anterior or posterior vaginal septum; and this instrument was, until the introduction of Sims's speculum, the one generally used in Europe for vesico-vaginal fistula, or for operations on the cervix uteri. Jobert's speculum has undergone various modifications by the addition of valves or other attachments, which, in some instances, have increased, and in others impaired its usefulness.

The names of many physicians, [at present favorably known in the treatment of uterine diseases, are each associated with a speculum of peculiar shape. I am of the impression that each and all of these instruments have served very well in the hands of their originators; and have proved to be useful means of exploration with those who have acquired skill in their use. It is not my intention, neither my desire, to comment upon the relative merits of any of these instruments, but to express succinctly certain preferences in favor of the common round speculum as a usual means of exploration; which opinion I think justified; and, while I desire to uphold the usefulness of this simple and inexpensive instrument, I wish to be thought fully to appreciate the superior advantages of others where this is unsuitable. Moreover, having, in certain cases, experienced the want of a suitable instrument for the proper exploration of the female organs of generation, I have viewed with pleasure all attempts to attain this object. The glass cylindrical speculum, bevelled off at the inner end, coated with tin foil, and covered with india rubber, is a very portable and simple instrument, of facile use; and which, I believe, will meet the most frequent neces-

sities of the general practitioner. Exceptionally, however, this speculum cannot serve the purposes of exploration, or be used for the most important surgical operations practised in the vagina and uterus. But such operations do not form the major part of the treatment of womb diseases; and when complex operative procedures on the utero-vaginal region are required, other specula must supersede the cylindrical speculum. Difficult operations, on this region, are generally assigned to the dextrous hands of those possessing a special acquaintance with the subject; and, as the result shows, each one seems to have his particular speculum. The cylindrical speculum, as is well known, may be introduced very conveniently with the patient on the left side or on the back, and if required, under cover. The bevelled edge of the instrument is introduced between the labia, and parallel to them; the perineal commissure is gently pressed by a slightly rotating movement, and the vaginal sphincter being passed, the speculum enters without difficulty. The cervix, if not abnormally enlarged or too much displaced, will enter the field of the instrument. Sometimes this will not occur, but the amplitude of the upper part of the vagina may permit, without injury to the cervix, a slight rotating movement of the instrument, which will end in discovering the cervix, either ante or retro-flexed. The end of Sims's flexible metallic uterine probe, hooked into the cervical canal, may, without too much pain, cause the cervix to enter the speculum. If the cervix is too much displaced, the sound cannot be introduced through the speculum, but should be passed along the

finger, previously inserted into the vagina. The difficulty, of which some speak, of not being able to use the flexible sound through the cylindrical speculum, I have been usually fortunate enough to obviate by first shaping the sound to correspond to such a curve as a previous digital and bi-manual exploration may have discovered, at the first examination of the patient, to be necessary. The end of the sound, being passed through the speculum and inserted into the cervical canal, a certain lateral movement is imparted to the speculum if the patient be on the side, and a depressing or elevating movement if on the back; and these movements should correspond to those of the sound held with the right hand. This kind of manipulation, with the proper curve to the probe, will frequently be sufficient to permit of a thorough examination of the uterine cavity by means of this instrument. When this cannot be done, the patient placed on her side or on her breast and knees, Sims's speculum being introduced and properly held, the cervix may be dragged down with a slender tenaculum and the uterine probe introduced. Recently, at the Northwestern Dispensary, with the Women's Department of which I am connected, not having Sims's speculum with me, I made use of an old disused tongue depressor to examine and manipulate a prolapsed and partially but badly inverted uterus. The house physician, Dr. Clark, kindly held the instrument for me while I attempted ineffectually to reduce the inversion, which was firm and immovable, resisting the pressure of the index fingers. I could not have desired a better view of the parts than I obtained

with this improvised speculum. No other instrument could have enabled me better to manipulate; but I was compelled to desist, and inserting into the vagina a large cotton plug, saturated with glycerine, sent the patient home to remain quietly in bed, to wait the good results of rest, position, and the soothing effects of the glycerine, to reduce the congestion of the parts. The cylindrical or conical speculum is very convenient for making various applications to the cervix, or to the interior of the cervical canal; for leeching the neck of the womb, or for local depletion by scarifications of this part. Sponge tents may with facility be inserted into the canal of the cervix through this speculum; which may also be advantageously used for fastening a pair of spring forceps to the protruding end of the tent previous to its removal and after the withdrawal of the speculum.

By scarifications of the cervix, made through the cylindrical speculum, from half an ounce to an ounce of blood may be withdrawn and removed by means of the well known long-pipe rubber syringe. If desired, the flow of blood may be still further increased by injecting warm water into the speculum.

In conclusion, it is proper to add, that this instrument can nearly always be conveniently held by the patient, thus dispensing with an aid.

Reviews and Bibliographical Notices.

ART. I.—*Stellwag on the Eye*. Translated by C. E. HACKLEY, M.D., Surgeon to New York Eye and Ear Infirmary, etc., and D. B. ST. J. ROOSA, M.D., Clinical Professor of the Diseases of the Eye and Ear in the University of New York, etc. New York: William Wood & Co. 1868. 8vo., pp. 774.

WE have just received the translation by Drs. Hackley and Roosa of Stellwag's remarkable treatise on the diseases of the Eye. The book is a large octavo of 750 closely printed pages, illustrated by ninety-six wood engravings, and eighteen chromo-lithographs; the latter identical with those which appear in the third German edition, and marked by the exquisite care with which such illustrations are prepared abroad. To do justice to such a book would use more time than we can now command. The general medical profession has watched with inquisitive interest the growth of modern ophthalmology, and followed, through reported cases and monograms produced in German, English, and French, the labors of those who have striven to place the subject upon a broad and scientific basis. The greatest advances in the science have been since the discovery of the Ophthalmoscope, and the field of most active and adventurous labor has been in Germany. In saying this we do not shut our eyes to the work of our English brethren, who have been great originators, and also quick in imitating and improving continental methods, and testing every procedure which promised success in the ordeal of a most extensive and varied clinical practice. The results of the labors of Graefe, Helmholtz, and Donders make a grand epoch in the history of medicine; and we may say, without running the risk of contradiction, that no department of the healing art has so nearly approached the accuracy of an exact science as that of Ophthalmology. The influence, moreover, of this growing ex-

actness has been most salutary upon the general course of medical investigation, so that ingenuity and research have everywhere been stimulated in the production of new methods of clinical exploration. In attempting to review such a comprehensive treatise as that of Stellwag, one is embarrassed by the very copiousness of the subject. The names of those who have labored with such industry and success to advance our knowledge of the anatomy, physiology, optics, diseases, and therapeutics of the eye, crowd upon us, so that even a cursory sketch of the bibliography of ophthalmology would exhaust our space, fatigue the reader, and lead us far from the purpose of this review. Since the days of Mackenzie's book, no systematic treatise on the eye has appeared in English. Indeed, so rapid has been the addition of fact to fact, and the foreshadowing of new truths about to be born, that there has been a confessed reluctance on the part of competent writers to commit themselves to a book which, although it might enter the press laden with the latest products of thought and experience, would certainly emerge from the same behind the day in some very essential particulars. The course of Stellwag has furnished an illustration of the cited embarrassment, he having pushed his book very rapidly through three comparatively small editions, so as to keep abreast of new views and practice. The translation by Drs. Hackley and Roosa from Stellwag's last edition, makes its appearance with commendable alacrity, and places the American profession under real obligations. The question is constantly asked by the English-reading students of medicine, What book on the eye can we get which will give us the latest information in a scientific, and at the same time compendious and practical form, so that we may meet the responsibilities of ordinary ophthalmic practice? The forced reply has been, There is no such book. You may study Donders in the Sydenham Society's translation, for the diseases of accommodation; you may read Zehender, by Carter, for a knowledge of the ophthalmoscope; you may go

through the Journals, or reports of hospitals or societies, for the latest methods of practice; you may purchase a score of big and little brochures professing to give, with more or less truth, the best compendium; but nowhere in English can you find such a book as the present state of the science justifies, or your necessities demand. The appearance of Stellwag supplies this long-felt desideratum in a most admirable manner. It should be in the hands of every medical man; and no one can safely practice ophthalmology who does not regard the subject from a standpoint at least as high as Stellwag occupies. He divides the subject matter of his treatise into four parts. The first part treats of inflammation of the eye and its consequences, beginning with some general remarks of rather an extended character; then taking up in succession keratitis in its numerous forms, inflammation of the vitreous humor, inflammation of the optic nerve, and so through the varieties of neuro-retinal affections. He then treats of iritis, and diseases of the choroid and ciliary body, including glaucoma; then of the many forms of scleral and conjunctival disease; next of affections of the eye-lids and lachrymal organs; and closes Part First with a section on inflammation of the orbit. Part Second is devoted to "*Tumors*," for which "Virchow's work has been used as the basis." Part Third presents an extended historical, critical, and practical compendium of the present state of opinion and practice in cataract. Part Fourth is devoted to functional diseases, and focuses for the general practitioner the light which modern research has thrown upon the heretofore unknown subject of Asthenopia. This part of the book is a rich mine for the honest and studious medical man, and will tend to dispel the dense fog which has enshrouded the term Amaurosis in the minds of the great mass of practitioners. It will send many a poor fellow to cure his "Amaurosis" at the optician's, who otherwise might have dragged out a weary existence under a course of mercury, iodide of potassium, or blisters. An appendix closes the volume, in which some

matters relating to the ophthalmoscope have been added, and a set of test type, all tending to render the book more valuable to the general practitioner.

ART. II.—*A Practical Treatise upon Eczema, including its Lichenous and Impetiginous Forms.* By DR. M'CALL ANDERSON. Second edition. London: John Churchill & Sons. 1868. 8vo., pp. 180.

WE have read, with pleasure and with profit, every page of the valuable monograph before us, and heartily recommend it to those who may desire to refresh or extend their knowledge of the subject. It is no mere compilation, or abstract, but bears the strong impress of the author's individuality, as well as of that tendency to dogmatic assertion which makes the self-reliant, well-informed, enthusiastic, and probably youthful author. We have no knowledge of Dr. Anderson's age, and if our surmise be incorrect, it is no less certain that time has not toned down those qualities which distinguish the happy days of hot endeavor.

We hope that those who have not yet studied eczema, the most frequent and the most protean of the diseases of the skin, will commence with this little volume. The clear graphic description of the elementary lesions, though perplexing at first, will save a world of clinical trouble for the future. Under these banners all the straggling ragged types of local varieties fall readily into line, and the student will have no difficulty in assigning to them their proper rank and places. Eczema erythematosum, squamosum, vesiculosum, rubrum seu madidans, pustulosum seu impetigo, papulosum seu lichen, rimosum, acutum, chronicum, siccum, universale, nummulare, sclerosum, verrucosum, unisquamosum, solare, mercuriale, erythematodes, capitis, pilare faciei, labiorum, tarsi, narium, aurium, meatus, articularum, manuum et pedum, palmare et plantare, crurale, unguium, genitalium, ani, mammæ, umbilici, intertrigo,

all take their places in their ineffectual struggle against the positive advance of our therapeutics. It will be a solid comfort, however, to the beginner to learn that Dr. Anderson rejects the eczema marginatum, and passes it over as a variety of tinea tonsurans.

"Those who study eczema carefully at the bedside, without bias, will be forced," says Dr. Anderson, "to the following conclusions:

"1. That the elementary lesion of eczema is not of necessity a vesicle. 2. That it may be an erythematous state of the skin, a vesicle, a papule, a pustule, or a fissure. 3. That impetigo and lichen are merely varieties of eczema, in which the elementary lesions are respectively pustules and papules. 4. That cases of eczema are often met with in which an erythematous state of the skin, vesicles, pustules, papules, and fissures are met with in a combined form." And when the eruption is at its height the following symptoms "are almost always present in a greater or less degree. 1. Infiltration of the skin. 2. Exudation on the surface of the skin. 3. Formation of crusts. 4. Itching or burning heat."

How true is the following criticism of the clinical behavior of the man who demands vesicles for his diagnosis of eczema. "When a Willanist," (of the school of Willan,) "deeply imbued with the belief that eczema must exhibit vesicles, has a case under his notice, it is quite painful to observe how he strains his eyes in quest of them, when perhaps none are to be found, or how pleased he is if, on a surface which we shall say is covered with innumerable papules, one small vesicle is at last detected, or even a papule, translucent on its summit, so as to give it the air of a vesicle!"

Dr. Anderson dissents from Tilbury Fox's belief in a contagious variety of eczema, believing that syphilitic, or parasitic disease, must complicate such cases.

The well known complication of eczema with scabies is discussed in its relations to diagnosis, and there is every reason to believe that these mistakes are perpet-

ually recurring. The reviewer has been informed of instances in which soldiers returning home after our civil war have spread the disease in localities where its true nature has been tardily appreciated; and in his private practice he has recently treated cases of scabies introduced very innocently by visitors into families whose style of living would seem to place them beyond the risk of such accidents. A chief steward of a leading trans-atlantic line of steamers, consulted him for a disease of the skin which had interfered with his duties to a certain extent for one or two trips, but which acknowledged the little *acarus* as its source. In cases of doubt it is better to adopt the treatment for this parasite. Time will soon tell whether the supposition be correct.

Cases of psoriasis in the summer season, or after the thorough use of baths, or ointments, present appearances at first sight not dissimilar, but Dr. Anderson points out very clearly that in addition to the absence of humidity "the tint of the patch is usually brighter, and the itching, as a rule, more marked, while the eruption has no tendency to attack the extensor, but on the contrary, the flexor surfaces of the elbows and knees."

"A great deal of nonsense," says Dr. A., "has been written about the danger of suddenly 'driving-in' (as the expression goes) a severe or chronic eruption such as eczema. . . . It is to be feared that the mistake is in great measure to be traced to the unmerited neglect of the study of skin diseases by the medical profession, the resulting inability to grapple with them successfully, and the consequent temptation to evade the difficulty by the plausible excuse that danger might arise from any attempt to cure them quickly by driving them inward. For while I have treated thousands of cases of eczema, many of them covering the greater portion of the skin, I have rarely witnessed any bad effect even from the rapid removal of the disease."

Although our experience has not been at all equal to that of Dr. Anderson, we most heartily endorse the

results of his observation ; but we consider that he has overlooked a material cause for the popular and professional belief in the danger described. Children are perhaps the ones most liable to these diseases, and certainly the ones most liable to this risk. It may happen in them that the languid circulation which precedes or attends the development of fatal cachexiæ, or the derivation from the skin which attends internal congestions, result in the fading of a prominent eruption. Moreover, this often happens before yet the diagnosis of the grave disease has been established, and thus by a faulty train of reasoning, our old friends the *post* and *propter hoc* mislead the public and many of the profession. An interesting case occurs to us at the moment, to which we were called in consultation. The little baby had eczema evidently, but was pallid and delicate looking. As the only child, and one on whom many interests centred, we postponed prescribing for a while, until the constitution had been more carefully studied ; but within two days the eruption began to fade spontaneously, and the evidences of fatal meningitis (doubtless tubercular) appeared.

There is, however, much to be said on both sides of the question, but still the decision must rest on the gathering statistics which demonstrate the truth of Dr. Anderson's convictions.

Such convictions lend an increased interest to the treatment of the disease, in which our author displays the vigor that might be anticipated from the tone of his mind.

While recognizing the superiority of local over constitutional treatment, he attaches great value to the latter, and pushes his remedies heroically. Herein we see a risk that his advice may be followed by injurious results and unnecessary medication by so many practitioners. For our own part we have nearly discarded the use of those internal remedies which do not improve the tone and standard of digestion and assimilation, and we believe that the following remarks in

relation to arsenic are a blemish on the book. "I do not think it necessary to stop it (arsenic) if slight irritation of the eyes or puffiness of the face is induced, but if these symptoms are at all aggravated, and especially if they are accompanied by pains in the stomach and head, anorexia, or nausea, the dose should be diminished, or in some cases omitted for a few days. On no account, however, should its administration be omitted altogether because these physiological effects are produced." "In the case of infants at the breast it is advisable to administer the arsenic to the mother."

Local remedies are considered so fully, so admirably, and so concisely, and so many formulæ are given, that we must refer the reader to the work itself for this information, merely remarking on the fondness of the author for blistering, and for the use of solutions of the potassa fusa. We extract the following prescription for a soothing application, as the author distinguishes it by the designation of "a most elegant formula."

R pulv. camphoræ, gr.ij; pulv. zinci oxidi, Oss; glycerinæ, adipis benzoati, aa, Oj; cochinillini, gr.j; olei rosæ, m.ij. M. S. *Stir the mixture before using it.* Smear a thin layer over the inflamed part twice or thrice daily.

The publishers have done their part of the work in a way which leaves absolutely nothing to be desired; the paper, print, heading, and index being each and all admirable and complete; and we heartily wish Dr. Anderson a continuance of the energy and close application which have already procured for him such a distinguished rank among dermatologists.

The volume is appropriately inscribed to Hebra, whose teachings so worthily influence the practice of our time, and have done so much for Dr. Anderson.

ART. III.—*The Principles and Practice of Laryngoscopy and Rhinoscopy in Diseases of the Throat and Nasal Passages. Designed for the use of Physicians and Students. With Fifty-nine Engravings on Wood.* By ANTOINE RUPPNER, M.D., A.M., etc. New York. A. Simpson & Co. 1868. 8vo., pp. 153.

THE author rightly remarks in his Preface that "the value of the Laryngoscope and [the] Rhinoscope in the diagnosis and treatment of disease beginning to be daily more appreciated by the profession, it is desirable that the principles and application of the same should come as speedily as possible into general use," (p. vii.) We know of no manual in the English language on the subject which is better calculated to further these ends than Dr. Ruppner's very excellent little work. To a thorough practical familiarity with laryngoscopy and rhinoscopy, and the treatment of the disorders of the upper air passages, derived not only from the personal instructions of Türck and of Tobold, but from large individual experience, he adds an ample acquaintance with the literature of the subject. From the fullness of his knowledge, the author has been able to prepare a condensed guide of the essentials for conducting properly physical examinations of the throat and posterior nares. He has done more; the chapters on the Application of Remedies to the Larynx aided by the Laryngoscope; the remedies used, and how applied, with the operative proceedings within the larynx, including the modes for the removal of morbid growths from the larynx, and the application of galvanism to the larynx, are excellent, instructive, and judicious.

Dr. Ruppner vindicates Türck's claim to priority in the full and successful practical application of the mirror to the diagnosis of the diseases of the larynx. All previous attempts had been partial and incomplete. From Türck's mirror, laryngoscopy became a possible, and, finally, a recognized means of diagnosis. The mer-

its of the rival claimant, Czermac, are not overlooked. He first rendered artificial light available; he reduced the art to a system; he, from the very first, insisted and laid stress upon the importance of the laryngoscope in the diagnosis and treatment of laryngeal diseases, and illustrated the correctness of his sayings by practical results in practice; and, finally, to him we are indebted for the art of rhinoscopy.

One of the most useful features of the work is the number, appropriateness, and excellence of the wood engravings. Many of these have been taken from Türck's great work on "the Diseases of the Larynx and Trachea," and others, original and selected, illustrate apparatus, instruments, and the manner of using them.

We have but little doubt that this work will soon reach a second edition, in which we may expect to find some blemishes of style amended, and typographical errors corrected.

ART. IV.—*The Culture Demanded by Modern Life. A Series of Addresses and Arguments on the Claims of Scientific Education.* By Professors Tyndall, Henfrey, Huxley, Paget, Whewell, Faraday, Liebig, Draper, De Morgan, Drs. Barnard, Hodgson, Carpenter, Hooker, Acland, Forbes, Herbert Spencer, Sir John Herschel, Sir Charles Lyell, Dr. Seguin, Wm. Stuart Mill, etc. With an Introduction on Mental Discipline in Education, by E. L. YOUNG. New York: D. Appleton & Co. 1867. 12mo., pp. 473.

No liberally educated man, at the present day, can fail to be interested in the revolution of opinion that is now taking place regarding the estimate to be placed upon the value of classical studies, and their adaptability to the demands of modern life. We have found out, by dint of severe and too often costly experience, that these studies come far short of fitting men to grapple with the great questions which advanced civilization is

constantly forcing upon us ; and we see the ablest minds now turning their attention to the utilitarian studies, and systematically advocating their pursuit. More than this, as we had occasion to remark some few months since, in a short notice of Dr. Bigelow's "Modern Enquiries," the "men who are now leading the world in its progress of civilization, and are controlling the intellect and thought of the masses of the people, are investigators in the natural sciences." It is no wonder then that so marked a reaction against the old system of education should have at length come about ; but we should be cautious, lest in our zeal for remedying an evident deficiency, we should go to the opposite extreme, and lose sight of the well-founded claims of the classics to recognition ; for these studies are unquestionably of great service, especially in the training of the student for certain of the so-called liberal professions, and must always remain so.

Dr. Youmans, who has been an attentive observer of this conflict of opinion, as well as an earnest advocate for the more careful training of students in scientific studies, has been led to the compilation of this book, with the view of placing within reach of the American reader the arguments of some of the most celebrated scholars of the day, on the general subject in question. He has himself contributed two important essays "On Mental Discipline in Education," and "On the Scientific Study of Human Nature," which were necessary to the completeness of the argument, as these subjects were nowhere else discussed. The names of the authors of the various essays are sufficient in themselves to attract attention to the volume, independently of the interest attaching to the subject matter. Take for instance the first four essays, Prof. Tyndall, On the Study of Physics ; Henfrey, On the Study of Botany ; Huxley, On the Study of Zoology ; and Paget, On the Study of Physiology. Each essay is in truth an elaborate argument, showing not only the importance, but the necessity for the rising generation to be instruct-

ed in these studies, if they would be equal to the educational demands of modern life. Now, group all these with the other essays in the book, and we have combined a comprehensive survey of the whole question, which, from the acknowledged superiority of the individual authors, will probably carry a more thorough conviction than would the work of any single mind, no matter how able.

The book is invaluable to all who take any interest in the great educational problems of the day, and physicians especially, it seems to us, should make themselves competent counsellors in this subject, as the very questions that daily come up for decision naturally fall within the limits of their own studies. We congratulate Dr. Youmans on the good work he has accomplished in bringing together and rendering accessible these valuable papers; and we would especially urge upon our readers the importance of acquainting themselves thoroughly with the various bearings of the subject at issue.

ART. V.—*Annual Abstract of Therapeutics, Materia Medica, Pharmacy, and Toxicology for 1867, followed by an original Memoir on Gout, Gravel, and Urinary Calculi.* By A. BOUCHARDAT. Translated and Edited by M. J. DEROSSET, M.D. Philadelphia: Lindsay & Blakiston. 1868. 12mo., pp. 314.

WE are glad at last to see the *Annuaire Therapeutique* done into English, and placed within the reach of the profession in this country. As most of our readers are aware, this little manual is an abstract of the various improvements and additions to the branch of therapeutics made during each year. Of course, to present anything like a fair resumé of what is done each year, implies a wide research, and a careful discrimination in the selection of materials; for, without the first, the book would not fairly represent the advance in therapeutics, and a neglect of the second would swell the

limits of the volume to a preposterous degree, both in quality and quantity. The name of the editor is a guarantee that both these requisites have been well provided for ; and while the selections, as a rule, are mostly devoted to the practical portion of therapeutics, or the application of medicines to the cure of disease, still, where scientific experiments have embodied points of clinical value, or where they furnish a basis from which practical applications may be induced, they have been incorporated in the work.

We have endeavored, in the Reports of *Materia Medica and Therapeutics*, in this Journal, to follow out pretty much this same plan ; and we find in this issue of the Abstract many things that have already appeared in our pages. But the convenience of a single reference book will induce many of our readers to procure the volume for their own use, and especially to those who have not the original at hand do we commend it.

The translator's work appears to be well done, and we hope to see him so encouraged and sustained in this useful enterprise that he will continue it yearly.

ART. VI.—*The Indigestions or Diseases of the Digestive Organs Functionally Treated.* By THOS. KING CHAMBERS, M.D., Honorary Physician to His Royal Highness the Prince of Wales, Consulting Physician and Lecturer on the Practice of Medicine at St. Mary's Hospital, etc. Philadelphia: Henry C. Lea. 1867. 8vo., pp. 287.

THE fundamental principle that underlies Dr. Chambers's teachings, is that all disease is for the physician essentially a deficiency of life ; all treatment should, therefore, be directed with the view of supplying this deficiency, or to the renewal of life, as he himself calls it. On this theory, advanced in his clinical lectures which he put out under the identical title of "*Renewal of Life*," and to which we have had occasion previously

to allude, he now bases this second publication, and clings to it with all the boldness which he has previously displayed in defending his positions, and with a consistency truly refreshing in times when one's private opinion is only too apt to be a reflex of the prevailing popular view on any given subject.

The volume before us grew out of a smaller publication by Dr. C., which has for a long time been out of print, but which he has now enlarged and altered to such an extent, that it is essentially a new book, and is presented under a new title; and, as this title indicates, the subject is treated functionally, while in the former work it was viewed from an anatomical point of view. The cases which are introduced most profusely by way of illustration, are taken from the records of St. Mary's Hospital and from the author's private practice. His method of making records of his cases is novel, and commends itself to those whose business is chiefly confined to office practice. He says, "I make it a rule, to which the exceptions need be very few, to write all prescriptions and papers of advice in a copying book, which makes a duplicate of them by means of transfer paper; and at the back of this transcript I write, usually with the patient before me, his symptoms and history, at least so far as to explain my reasons for the advice, before I go on to the next page. The periodical indexing of these sheets is an easy job for an hour of weariness, and the whole time consumed is so crumbled up that it is never missed, and neither business nor amusement feel themselves robbed."

Some such short-hand method as this, if adopted by all, would render available a large and valuable amount of experience that now is wholly lost to the profession, for few are so rash as to attempt writing for the benefit of others without carefully preserved notes.

But to return. Chap. I. The introduction is devoted to a brief exposition of Dr. C.'s views of the essential nature of disease, to which we have before referred. On this point we are thoroughly in conso-

nance with him, although well aware it is antagonistic to most of the teachings of the day. We have also a portion of the chapter given up to a consideration of the importance of the digestive viscera in the cure of disease, and hence, and primarily, the double necessity of endeavoring to restore to healthy action the functions of these organs when they have become deranged. Many of these derangements, and certainly the most prominent of them all, indigestion, are chronic, by which Dr. C. means to imply that their "path is straight on from bad to worse," "while the tendency of acute disease is to progress in a circle toward the recovery of health." Therefore interference by way of treatment, medical or otherwise, is especially necessary in this class of cases, for if left to themselves, the tendency is to grow worse. No one then from the obscurity or difficulty of a case should neglect a careful investigation into its causes, or should conduct the treatment on general principles merely, and without special understanding of its various bearings. A few pages on nomenclature close this chapter. In health, digestion is *quick, complete, and easy*, in ill health, it is impaired in one or more of these qualities, and becomes *slow, defective, and painful*. Now the prodigiously learned terms *Bradypepsia*, *Apepsia*, and *Dyspepsia*, may be applied to these conditions, but the plain English will answer every purpose, and Dr. C. generally adopts them.

A very practical division of causes of indigestion is derived from the classes of food, i. e., (1) Starchy and saccharine. (2) Albumenoid. (3) Fatty. (4) Watery, which are especially undigested. Of course in each case, this is to be learned partly from the patient and partly from observation of the changes which take place in the ingested materials, and on this knowledge is at once based an important element of the treatment, viz., the dietetic. The consideration of these subjects, illustrated by appropriate cases, takes up the second chapter, which is crowded full of valuable and not otherwise easily attainable information and instruction.

Chap. III is devoted to a discussion of some of the habits of social life, which being voluntary, and yet persisted in by reasonable persons, usually from ignorance, are a prominent cause of indigestion. Were this chapter not conceived in the most earnest endeavor to seek out truth, and were not the professional aspect of the subject so judiciously brought out, we might look upon it as a slashing criticism on modern life, and unfold it to the reading public, learned and unlearned, with leave for each one to make the application to his or her own case. Look at the counts in the indictment. "Eating too little; eating too much; sedentary habits; tight lacing; sexual excesses; compression of the epigastrium by shoemakers; solitude; intellectual exertion; want of employment; abuse of purgatives; abuse of alcohol; tobacco; tea; opium." How many a suffering mortal may not trace his pet infirmity to one or the other of these causes? and yet, *sublatâ causâ tollitur effectus*, and you have made a great stride toward recovery. There is some comfort, too, in this chapter for those of us who must plead guilty to its accusations, in the fact that while dealing with our shortcomings or excesses so sharply and severely, it is done so genteelly and elegantly, that, on the whole, we feel rather pleased at the castigation. But in all sincerity we look upon this chapter as a most valuable guide to physicians, and warning to patients concerning transgressions against the established physiological conduct of life. The advice as to medicinal treatment proper, is also most serviceable. It should be read by every medical man in the country, and he should read his lessons to his patients from out its pages. We only regret that we have no room for a more thorough analysis of its contents.

We have already so far overstepped our limits that we can only refer to the remaining chapters, wherein are discussed single symptoms, or groups of symptoms, which are indicative of some derangement of the function of digestion. These are "abdominal pains,"

"vomiting," "flatulence," "diarrhœa," "constipation," and "costiveness." The closing chapter treats of the "nervous diseases connected with indigestion," wherein sensibly enough the author comes to the conclusion that they are rarely curable by means which act directly on the nervous system. The function of digestion must first be set aright.

Dr. Chambers's love for quaintness of expression and originality occasionally betrays him into open violations of the Queen's English, that are inexcusable in one whom we know to be so profound a scholar. There is a charm, however, about his writings which never fails to secure the attention of the reader, and which invests otherwise dull subjects with the most attractive dress, and we are sure our readers will be both profitably and pleasantly employed in the perusal of this book, which we commend to them with all sincerity.

ART. VII.—*Chemistry*. By WILLIAM THOMAS BRANDE, D.C.L., F.R.S.L., etc., and ALFRED SWAINE TAYLOR, M.D., F.R.S., etc., Professor of Chemistry and Medical Jurisprudence in Guy's Hospital. Second American Edition, thoroughly revised. Philadelphia: Henry C. Lea. 1867. 8vo., pp. 764.

PROFESSOR BRANDE'S "Manual of Chemistry," which acquired for the author so distinguished a reputation, increased in size with successive editions until in its encyclopædic proportions it had quite gone beyond the necessities of students; and this work is the result of the combined labors of the two authors to furnish within the compass of a single volume, a treatise that, on the one hand, should be sufficiently complete for the every-day wants of the student and the practitioner, and, on the other, should avoid the unsatisfactory meagreness of the hand books which so often are a hinderance to knowledge.

In consequence of the death of Professor Brande,

the preparation of the second edition of the well-known work has devolved entirely upon Dr. Taylor. No change has been made in the plan of the work, but the whole has undergone a careful revision, and numerous additions have been made in all parts of the volume. The ordinary notation, based on the equivalent or combining weights of bodies, which was adopted in the first, has been retained in this edition. This is wise, for the new methods of notation must be considered as still on their trial; and the strongest advocates of many of them, in recent editions of their books, have found it desirable to abandon them for old and intelligible systems. This fact is significant, for these new systems, in many instances, were devised by those very teachers who now lay them aside. For the student in this country, the old method is certainly the best; for it is the method by which he is taught his chemical nomenclature and notation, and the confusion arising from the introduction of new methods would only serve to make unintelligible his study.

The recognized value of this treatise, and its reputation both here and abroad, render it unnecessary for us to more than call attention to this new edition, which the American publisher has brought out with great care and accuracy; the supervision of the work, as it passed through the press, being entrusted to a competent chemist.

ART. VIII.—*The Treatment of Diseases of the Throat and Lungs by Inhalations.* By DR. EMIL SIEGLE. Translated from the German by S. NICKLES, M.D. Cincinnati: Max Wocher. 1868. 12mo., pp. 136.

BUT few months have elapsed since the first German edition of Dr. Siegle's work on inhalations was published, and a second edition is already demanded. After a careful perusal of this book, we are free to admit that it is by far the most compact, practical, and read-

able treatise, on the subject of inhalations, with which we are acquainted. We say compact treatise, for it would be unfair to compare it with such works as those of Waldenberg and Lewin.

The assertions of the author are based upon carefully conducted experiments, sustained by corroborative evidence of other observers. The chapters on Croupous Inflammation of the Larynx, Œdema of the Glottis, Whooping-Cough, Tuberculosis of the Lungs, and Hæmorrhage, deserve especial attention.

With the exception of two typographical errors, on pages 39 and 52, the execution of the work reflects credit upon the translator and publisher.

ART. IX.—*Inhalation: its Therapeutics and Practice. A Treatise on the Inhalation of Gases, Vapors, Nebulized Fluids, and Powders, including a description of the Apparatus employed and a Record of numerous Experiments, Physiological and Pathological; with Cases.* By J. SOLIS COHEN, M.D. Illustrated. Philadelphia: Lindsay & Blakiston. 1867. 12mo., pp. 305.

THE liberal title-page gives the scope of this work, with, perhaps, more copious promise than full performance. The author has pretty thoroughly, however, condensed the literature of the subject in this volume, though not always avoiding the crudities of enthusiastic therapeutic pioneers. He has embodied the experience of a number of physicians who have used atomized inhalations, and yet their actual remedial value can hardly be determined by the evidence brought forward. It is left very much in the state we mentioned in reviewing Dr. Beigel's manual in the fifth volume of this Journal, p. 147. More facts are needed, and nicer discrimination, or surer rules in the use of this agent, before it can become generally accepted, or popular with practitioners or patients. While much may be said in its favor, those who have large

experience with it, come more and more to learn the drawbacks inseparable from its constant employment, not the least of which are uncertainty, tediousness, and incompleteness of result. In many disorders of the air passages we have found the effect of atomized inhalations surprisingly and promptly happy, so far as immediate relief of symptoms, but with no ultimate curative results, and have been satisfied that much valuable time had been wasted by exclusive reliance upon them.

ART. X.—*Light; its Influence on Life and Health.*

By FORBES WINSLOW, M.D., D.C.L. Oxon., (Hon.)

New York: Moorhead, Simpson & Bond. 1868.

pp. 200.

DR. WINSLOW has sought in this work "to demonstrate the inestimable value of light as an hygienic agent, and to analytically examine its physiological influence in the development of vital phenomena as manifested in the animal and vegetable kingdoms."

The work is divided into four parts. I. The Solar Beam. II. The Lunar Ray. III. On the alleged influence of the Moon on the Insane. IV. Hygiene of Light. There is also an appendix in which the American publishers "deem it proper" to show that a poem assumed by Dr. Winslow to have been written by Milton was written by Elizabeth Lloyd, a Quakeress of Philadelphia, while they also present a more correct version than Dr. Winslow's. In so doing it is evident that the work before us is not a mere reprint, but that the text has been carefully examined by competent men.

Dr. Winslow has probably compiled this volume from such facts as were noted in his commonplace book during many years of study, and which are at last woven together in the volume before us. The excerpts are interesting, valuable, and very suggestive, but the concentration of style, and condensation of

such varied topics detract from an interest which would have been awakened by more freedom of narrative. In accepting the book, however, as a classification of facts of interest illustrating the purpose of an inquiry into a subject of such vast importance to the physician, the philanthropist, the legislator, and the man of science, we welcome it as a valuable and admirable manual on the subject, which deserves a widely extended sale, and the careful study of all who are interested in the health of individuals and of masses of men. The adoration which the fire-worshiper pays to the noon-tide effulgence of that beneficent orb on which all animated nature depends, finds its intellectual and subordinated sympathy in the contemplation by the man of science of the wondrous influences of light. In direct ratio to the diffusion among the masses of these influences will squalor, disease, and blighted development fail to retain their relative rank.

In heartily commending, therefore, a work of such practical and suggestive character, we have pleasure in calling attention to the admirable style in which the enterprising publishers have presented it to the public.

ART. XI.—*The Historical Magazine, and Notes and Queries concerning the Antiquities, History, and Biography of America.* Morrisania, New York: Henry B. Dawson. January, 1868.

AMONG the most valuable of our non-professional exchanges we count the above magazine. It is a mine of useful information, and interesting to all scholars. Though generally speaking such a journal may not be considered very cheerful reading, the January number must be acknowledged to be unusually interesting and instructive. The article by the Hon. J. Hammond Trumbull, President of the Connecticut Historical Society, on the origin of the poem "M'Fingal," and

that by J. Carson Brevoort, President of the Long Island Historical Society, on Early Voyages from Europe to America, may be considered the star papers of this number, and will well repay perusal. Mr. Brevoort's article will be continued, and will go over the whole ground of this question, which was so long a puzzle to the historiographers, but which by recent investigations has been so fully cleared up.

Under the able management of the present editor, Mr. Dawson, this journal has largely improved, and has become an essential to all students of American history as well as to lovers of American literature.

ART. XII.—*Felix Von Niemeyer's Clinical Lectures on Pulmonary Phthisis*. Translated, by permission of the author, from the second German edition, by J. L. PARKE. New York: Moorhead, Simpson & Bond. 1868. 12mo., pp. 116.

IN the December number of the Journal we gave, through the kindness of Dr. Lusk, an abstract of Niemeyer's views on tuberculosis. That article has already attracted considerable attention from the medical press of the country, and we think the publishers have done well in now placing within the reach of the profession, a reliable translation of the entire monograph of Von Niemeyer. Hardly any subject in medicine is at present undergoing so much discussion as the question of tuberculosis, and the generally accepted views concerning it are quite in danger of being upset by the recent investigations of the German pathologists. Niemeyer's monograph is the most condensed view of this advance in the pathology of tuberculosis, and our readers will do well to possess themselves of it and master its contents. Mr. Parke's translation is a faithful reproduction of the original, and is rendered into easy flowing English.

Varia.

ON THE PRESERVATION OF THIN SECTIONS OF THE BRAIN AND SPINAL CORD FOR MICROSCOPICAL EXAMINATION.—“The *first* method, and that which I usually employ, is this: The tinted section is placed for four or five minutes in a watch-glass with pure spirits of wine, then removed on a scalpel—the superfluous spirit being got rid of by bringing the dependent edge of the section in contact with blotting-paper—and afterward placed on a drop of carbolic acid in the centre of a glass slip. In less than two minutes the section is rendered transparent; and when this is accomplished (having got rid of any excess of carbolic acid) I pour over it three or four drops of chloroform, in which the specimen is allowed to remain for two minutes. The superfluous chloroform is then poured off, while one or two drops of a solution of Canada balsam in chloroform are dropped over the specimen, and the covering-glass is then quickly applied. The whole process is therefore simple, and extends over ten minutes, even for moderately thick sections, instead of several hours. The *second* method is only a variation of the one just detailed; all the steps are the same, with the exception that the section is steeped for two minutes in ordinary commercial benzine, such as is used for cleaning gloves, instead of in chloroform. The results are equally good in either case, the employment of the benzine causing no sort of precipitate, since it mixes freely both with carbolic acid and with the Canada balsam and chloroform. The *third* method, also equally good, is somewhat different, since carbolic acid is not used at all. The section, after saturation in spirits of wine, as before, is transferred to a covered watch-glass containing a small quantity of pure sulphuric ether, in order to drive the alcohol out of the section. In this it is allowed to remain for a few minutes, then the sec-

tion is carefully removed, and, just as it is becoming dry from evaporation of the ether, it is placed upon a drop of chloroform on the glass slip. The chloroform almost immediately renders the section transparent, and then the solution of Canada balsam and the covering-glass are applied as before. The ether is rendered necessary in this method in order to dissolve the alcohol out of the section, because, after the final mounting, the presence of any of this latter fluid causes the precipitation of the Canada balsam, in a molecular condition, out of its solution in chloroform.

"The use of the solution of Canada balsam in chloroform makes the mounting of specimens in this medium perfectly simple; whereas to mount in Canada balsam in the ordinary way requires some amount of practice in order to avoid disappointing results. I have tried solutions of gum dammara and of gum mastic, in chloroform, in ether, and in benzine, respectively, but with none of these compounds could I obtain such satisfactory results as with a carefully prepared solution of Canada balsam in chloroform.

"If it be desirable that the specimens of brain or spinal cord should not be immersed in spirit or ether at all, with the view of better preserving all pathological appearances, this is now quite possible. The hardening should be brought about by the use of bichromate of potash and chromic acid solutions; and the thin sections must be rendered transparent either by the first or second methods just detailed, only, in each case, omitting the use of the spirits of wine altogether. Sections taken from water or any aqueous solution, and then partially dried, become transparent in about twenty or thirty minutes when allowed to soak in carbolic acid. In ordinary cases, where the spirits of wine is employed, it is only used in order to hasten the process.

"Although the methods I have just described are so satisfactory for mounting thin sections of brain and spinal cord, I cannot recommend them for sections of liver, kidney, or other organs; these, I think, are best

preserved in pure strong glycerine, or else in a mixture of three parts of glycerine to one of carbolic acid. This mixture I have been using for three or four months, and, so far, it seems to possess advantages over simple glycerine. The specimen does not become so transparent as when glycerine alone is used, and the details of delicate cellular structures have seemed to be preserved with more distinctness. It is necessary to immerse the sections in spirits of wine for a few minutes, however, before placing them in the mixture of glycerine and carbolic acid, since this last will not mix freely with water."—*Dr. H. C. Bastian, in Jour. Anat. and Phys., November, 1867.*

PRESERVATION OF ANATOMICAL SPECIMENS.—M. Van Vetter, of the Anatomical Museum of the University of Boulogne, preserves anatomical preparations in the following manner :

He takes seven parts of glycerine, one part of brown sugar, and half a part of nitre, and mixes them. The pieces that you wish to preserve, (which may be dissected or not,) are then plunged into the mixture. Parts that have been in the glycerine for some time are difficult to dissect. The pieces are macerated according to their size ; thus a hand ought to remain in eight days. When after a little time the preparation is as hard as wood, he then suspends it in a dry and warm place. The glycerine disappears after a little, (*s' évapore,*) and perfect suppleness remains.

Anatomical specimens prepared in this manner, not only preserve their softness and their natural color, but the proper action and mechanism of the muscles may be demonstrated from such specimens.—*Journal de Pharmacie et de Chimie.*

IODINE AND CARBOLIC ACID.—The *Journal des Connaissances Médicales* publishes a letter addressed to Dr. Caffé, on Dr. Percy Boulton's late discovery of the action of carbolic acid on iodine. "The inconvenience," says the writer, "attending the external application of

iodine and its preparations is so serious that physicians are often compelled to abandon a remedy the therapeutic efficacy of which is undoubted, nay almost unequalled in materia medica. The great objection to the external use of this remedy is, that it leaves marks both on the linen and on the skin. This is a sufficient motive for seeking some means of getting rid of this drawback, especially in the case of ladies. Dr. Percy Boulton's method consists in adding a few drops of phenic (carbolic) acid to the iodine solution to be employed. This addition renders iodine perfectly colorless, so that it may be applied with impunity. But this combination has another advantage. It appears from that practitioner's observations, which I can confirm, that, so administered, carbolate of iodine, which is the new substance in question, is not only one of the most powerful antiseptics we possess, but is intrinsically a more efficacious agent than iodine alone. I have used this compound under the form of injections, gargles, and lotions, in all cases in which iodine is prescribed. In sore throat, ozoena, abscess in the ear, etc., this preparation is a sovereign remedy; since, besides its disinfecting qualities, it modifies the mucous membrane, causes all local sensibility to disappear, and cures the patient much sooner than if either of the two agents were employed separately. The formula I employ is as follows: Compound tincture of iodine, 3 grms.; pure liquid carbolic acid, 6 drops; glycerine, 30 grms.; distilled water, 150 grms. The writer then enters more particularly into the properties of carbolic acid, but with which our readers are already acquainted. Its efficacy as a disinfecting agent in the case of sores is well known; it may be prescribed in all cases in which tar water is administered, and is, we trust, now pretty generally adopted for disinfecting purposes in hospitals and barracks.

A SIMPLE METHOD OF PROTECTING WATER FROM THE ACTION OF LEAD PIPE.—*Dingler's Polytechnisches Journal* publishes a simple method, brought forward by

Dr. Schwarz, of Breslau, for preventing the poisonous influence of lead pipes on water, by forming, on the inside surface of the pipes, an insoluble sulphuret of lead, which has proved so effective that, after simple distillation, no trace of lead can be detected in water which has remained in the pipes for a long time. The operation, which is a very simple one, consists in filling the pipes with a warm and concentrated solution of sulphuret of potassium or sodium; the solution is left in contact with the lead for about fifteen minutes. Commonly, a solution of sulphur in caustic soda will answer the purpose, and produce, practically, the same results. It is known that sulphuret of lead is the most insoluble of all compounds of lead, and nature itself presents an example which justifies the theory of Dr. Schwarz, since water extracted from the mine of Galena does not contain lead, a fact which has often occasioned surprise.

[The following curious extract we take from an English translation of Polydore Virgil's "*De Rerum Inventoribus*," recently printed by the Agathynian Club of this city. The Latin original was first published at Venice in 1499.]

THE INVENTOURS OF HERBS MEDICINABLE; WHAT REMEDIES MEN LEARNED OF BEASTS.

NATURE doubtlesse, the Mother and Governesse of all things, did create hearbs, as may appear by many examples, partly for the delectation, and partly for the Health and preservation of mens bodies. For *Xanthus* an Historiographer (as *Pliny* recordeth) telleth how a Dragon revived his young Faun that was slain, by the vertue of an hearb called Balin: and the Hechewall, if a wedge be driven into the hole of her nest (for she maketh her nest in the hole of a Tree, that she worketh with her beak) compelleth it to fall out, with an herb that she knoweth; and some of the Indians live onely by hearbs. *Appianus* writeth, that the *Parthians*, which

Anthony put to flight, constrained by extreame famine, chanced to eat a certain hearb, whose nature was to make them that eat it, to forget all other things, and onely dig up stones, as if they would do some great matter; and after such extreame travail died. Of such Medicines made with Herbs, *Chiron* son to *Saturnus*, and *Phillara* was the finder, and devised also salves for wounds, Sores, Biles, although some think it was *Apollo*, and some refer it to his son *Æsculapius*, whom *Chiron* brought up to the *Samothracians*. But I suppose they attributed the Invention of it to *Chiron*, because he found the Herb Century, wherewith he healed the wound that he had by *Hercules* shafts, falling on his foot, as he was handling of his weapons: Notwithstanding, *Celsus* saith that the Art of Physick is very ancient, but he maketh no mention of the Author of it, onely he saith, *Æsclepiades*, which was an excellent Physitian, did abolish the use of it forasmuch as it annoyed the stomach, and engendred evil humours. *Mercury* found the use of Moly: *Achilles*, Yarrow, *Esculapius*, Panace; and sundry men found sundry hearbs, Medicines of Honey, *Sol*, the son of *Oceanus*, invented; and beasts taught men certain hearbs, necessary, for Medicines. As the Hart stricken with an Arrow, driveth it out with Dittany; and if he be stinged with a Spider he healeth himself with eating Pills, or a certain hearb named Cancer. *Selandine*, which is a sovereign hearb for the sight, was perceived by the Swallows, which healed the eyes of their young ones with it. The Snail or Torteise, ready to fight with the Serpent, armeth himself with Savery, or Marjoram. The Boar in his sicknesse, cureth himself with the Ivy. Of the water Horse in *Nylus*, men learned to let blood: For when he is weak and distempered, he seeketh by the River side the sharpest Reed-stalks, and striketh a Vein in his Leg against it, with great violence, and so easeth his body by such means: and when he hath done, he covereth the wound with the mud.

The Ibis, a bird much like the Stork of the same

Country, taught Physicians to Minister Glisters: For when she is full, she purgeth her self, with her crooked beak, at the Fundament. The Wesil in chasing the Serpent, preserveth her self with Rue, and the Stork with Organy. In *Greece*, *Orpheus*, *Museus*, *Dioscorides*; In *Rome*, *Marcus Cato*, *Pompeius Lenius*, wrote of the nature of Hearbs. *Pliny* thinketh that this Art was first received among the *Romans*.

THE NEW ANÆSTHETIC, BICHLORIDE OF METHYLENE.—Dr. Richardson claims for this substance the following characters :

1. It is an effective general anæsthetic, producing as deep insensibility as chloroform.
2. In action it is rather more rapid than chloroform, but to develop effects more of it is required, in the proportion of six parts to four.
3. It produces a less prolonged second degree of narcotism than other anæsthetics.
4. When its effects are fully developed, the narcotism is very prolonged, and is reproduced with great ease.
5. Its influence on the nervous centres is uniform, and it creates little if any disturbance or break of action between the respirating and circulating functions.
6. Its final escape from the organism is rapid, so that the symptoms of recovery are sudden.
7. In some cases it produces vomiting.
8. When it kills, it destroys by equally paralysing the respirating and circulating mechanisms.
9. It interferes less with the muscular irritability than perhaps any other anæsthetic.
10. It combines with ether and with chloroform in all proportions.

Dr. R. appends to his elaborate lecture descriptive of this agent the following account of its trial on the human subject. The whole paper is most valuable and interesting, but entirely too lengthy for transfer to our columns.

Since the lecture above written was delivered I have been enabled to test the action of the bichloride of methylene on the human adult subject in five long and severe operations. Four of these were cases of ovariectomy performed by Mr. Spencer Wells, and the period of narcotism in each case averaged from thirty-five to forty-five minutes. In all the cases, except one where Weiss's inhaler was used, the anæsthetic

was administered from a simple mouthpiece made of a layer of parchment paper stretched over a light frame of wood, and lined on the inner surface with lint. The quantity of bichloride of methylene used in each case averaged a little more than a fluidrachm each five minutes, two drachms being first used. In all the cases the administration has been safe, and the recovery from the effects of the narcotic good. I noticed specially, that in each case the transition from the first to the third degree of narcotism was very brief; that when the anæsthesia, which was complete in an average of five minutes, was well established, it was easily prolonged for six, and even seven minutes, without readministering the vapor, and when recovery began to show itself, very brief readministration quickly reproduced the insensibility. In one case after the operation, the patient continued twenty-seven minutes in unbroken sleep, and then awoke with entire consciousness.

It happened that one of the ladies to whom I gave the anæsthetic had once been under chloroform, Dr. Snow having been the administrator. This lady was therefore able to compare the effects of the two agents, and she gave her verdict strongly in favor of the bichloride. She said it caused no sense of suffocation, no ringing sounds in the head, no nausea, and no after depressing effect whatever, as chloroform in her case did; but it allowed her to drop into sleep precisely as in natural sleep, and to wake with all her senses aroused as after natural sleep.

On the whole, the results of practice, in so far as they go, have fully realized my expectations. Only two adverse points, and those minor, occur to me. In one case—after operation for vesico-vaginal fistula—the patient, who recovered from the anæsthesia without any nausea, had, I learn, ten hours afterward, a bilious vomit. It would be unfair to put this against the anæsthetic, but the fact should be stated. In another case, the anæsthesia having been carried very deeply, the tongue of the patient was retracted into the throat, and after pulling it forward, there was a free secretion of saliva, followed by an eructation and about a dessertspoonful of fluid from the stomach. This might have been excited by the irritation communicated to the throat in pulling up the tongue, or it might have been from the anæsthetic. In all the cases the recovery from the anæsthetic was in every sense satisfactory.

It is already stated in the lecture that bichloride of methylene mixes with ether. I have tried this mixture in experiments as an anæsthetic, using equal parts of ether and bichloride. The compound anæsthetises quickly, and the action is characteristically modified. The ether materially shortens the duration of the insensibility, there is less freedom of respiration, and more excitement. On the whole, I do not at this moment see any advantage in the mixture over the simple bichloride. I leave the point open, however, for future study.

I leave the Bichloride of Methylene with the profession for its observation and experience. I have proved the agent, by experiment on the lower animals, to be a good general anæsthetic. I have inhaled it

myself with safety, and I have administered it to the human subject with success in the extremest operations for which general anæsthesia is demanded. Here, as an individual inquirer, I come back into the ranks and rejoin the rest of my brethren as an observer. Having no other ambition than that of being a Physician in the widest sense; having even a painful aversion to specialty, and having no desire to press my subject unduly, I have produced this lecture as a contribution to pure science, and nothing more; holding myself as free as any one else to condemn, improve, or approve, as future knowledge, framed and squared and fitted by wisdom, shall determine. When twenty thousand persons shall have slept away pain under the influence of "Chloromethyl," as Mr. Spencer Wells has tersely named the Bichloride of Methylene, and those of them who have slept too deeply shall be counted as fewer than ten, an advance over chloroform will have been proved, but not sooner, nor with less of that tribulation through which we must ever attain to the good that is great and persistently beneficent.—*Medical Times and Gazette*.

DEATHS FROM CHLOROFORM.—Although Richardson's new discovery may some day give chloroform the go-by, we may continue in the mean time to record the authentic accounts of cases of death which have taken place after the employment of this agent. M. Desprès recently related one of these to the Paris Society of Surgery. A dressmaker, aged 19, having been put, on July 24th, under chloroform for the removal of vegetations of the vulva without any ill consequence, was on August 14th placed in the horizontal position for the same purpose. Some chloroform was dropped on a compress so as to moisten it to the extent of a five-franc piece, when it was held at a distance of three centimetres from the patient's mouth and nostrils. In less than half a minute she began to struggle, and the inhalation was suspended, although the pulse and respiration still continued good. Quite suddenly, however, she passed her urine, her face became highly congested, and the respiration was arrested. Artificial respiration and the other usual means were tried, and although a few respiratory movements were excited at intervals, death nevertheless occurred. The chloroform employed was quite pure. At the autopsy considerable pulmonary and cerebral congestion was found, and the heart was flaccid and large, its fibres, examined by the microscope, exhibiting a pretty ad-

vanced degree of fatty degeneration. The blood was found to contain too large a proportion of white globules, and at the bronchial bifurcation there were three glands very much hypertrophied, the largest reaching the size of a sheep's kidney and the other two that of a walnut. To the first of these the pneumogastric nerve adhered.

M. Broca related to the Society another case which had occurred in his practice at the St. Antoine. Joseph B., aged 17, entered the hospital to have a tumor of the neck removed, which was supposed to be a deep-seated sebaceous cyst adhering to the thyroidean membrane. On October 31, 1866, after the anterior surface of the tumor had been dissected, and the deep-seated part was about to be attacked, the patient, under the action of the chloroform, struggled and vociferated so violently that the operation had to be suspended awhile. When he had become calmer, M. Broca requested his assistants to hold him while he performed the little that required to be done, but so greatly had his strength become augmented that it was with great struggling only that the operation could be finished. An enormous vein now gave forth its blood from the lower part of the wound, and while this was about to be tied, the patient bounded up from the bed, and freed himself from the hands of the operator and his assistants. The hæmorrhage continued to increase, and after the attempts to tie the vessel had been several times defeated by the patient's violence, he was again put under the influence of chloroform. This vein, as large as a quill, was secured with some difficulty, owing to the fear of admitting the air; the patient breathed well and had a good pulse. The wound was about to be dressed, when, now several minutes after the inhalation of the chloroform had been suspended, the pupil having charge of the pulse declared that it had suddenly ceased to beat. Respiration still continued, but in a few instants it became slower, and then stopped. All the usual means were had recourse to, and, by gal-

vanism, a few inspirations were induced ; but these could not be maintained, and death was found to be complete. M. Broca believed at first that this fatal result was due to the introduction of air into the large vein rather than to the action of the chloroform ; but the autopsy convinced him that this interpretation would not hold, for neither the heart nor the divisions of the pulmonary artery contained frothy blood. Neither was there any coagulum in either of the cavities of the heart. After the patient's death it was learned that he was subject to fainting fits, and that one of these had occurred during the ten days prior to the operation. He was also of intemperate habits.—*Medical Times and Gazette*.

ANOTHER DEATH FROM CHLOROFORM.—Deaths from chloroform are now getting to be so common that it requires a faithful chronicler to keep track of them. The present case occurred (so says the *Liverpool Post*) at the Northern Hospital, Liverpool, on the 11th of September. The operation to be performed was that of straightening an ankylosed knee, the result of a fracture received some time previously. The junior house surgeon (Mr. Trubshaw) administered chloroform by means of Skinner's inhaler, using about four or five drachms, and thinking that the deceased would not inhale more than half that quantity. Deceased exhibited alarming symptoms toward the close of the operation, and artificial means were employed to sustain respiration, but he expired shortly afterward. The chloroform, it appeared from the evidence, was carefully administered, and every precaution used to prevent misadventure. A post-mortem examination of the body was made by Dr. Wollaston, senior house-surgeon at the hospital, and his opinion was that death resulted from syncope induced by chloroform. He added that the medical gentlemen present at the operation were satisfied with the manner in which the chloroform had been administered. Verdict, "Died from misadventure, from the administration of chloroform,

during an operation." The jury added that no blame was attachable to any of the medical gentlemen, and that the chloroform had been administered with caution. The patient was fifteen years of age.—*New York Medical Record*.

STILL ANOTHER DEATH FROM CHLOROFORM.—Mr. Beaumont, surgeon to the Toronto General Hospital, Canada, reports (*Medical Times and Gazette*, July 27, 1867,) a case of death from chloroform in a patient on whom he was about to commence the operation of ligation of the external iliac artery for traumatic femoral aneurism. He says: "I was on the point of commencing the operation, the patient being insensible from chloroform, when his pulse at the wrist suddenly became imperceptible, respiration feeble, and the face purplish. I dragged the tongue forward with Liston's forceps; cold water was dashed on the face, ammonia applied to the nostrils, and electricity and artificial respiration were employed, but all without avail. The heart's action seemed to have stopped before respiration had entirely ceased. Chloroform had been administered carefully by one of my colleagues, who dropped it on a napkin placed over the patient's mouth and nostrils; and there was no sign of unusual danger until the moment when his pulse began suddenly to beat feebly, and his lips to become purplish, a few minutes after which he seemed past recovery. At a post-mortem examination made twenty-four hours after death, the blood in all the large veins and in the heart was found quite fluid, and very dark, almost black. There were unusually many bleeding points in sections of the brain and medulla oblongata, and the pia mater was congested. The heart, lungs, and other viscera were healthy. The body was in good condition as regards muscle and fat, and the rigor mortis was well marked."

DEATH FROM CHLORODYNE.—On Saturday last considerable excitement was created in the town of Harleston by the report that a woman named Elizabeth

Saunders had been poisoned by chlorodyne. The deceased has for several years been in the employ of Mr. Thomas S. Stanton, of Mendham, who supplies this town with milk. While on her round with her milk on Saturday morning, she called on Mrs. Arnold, and as she complained to her that she was suffering from diarrhœa, Mrs. Arnold gave her a dose of chlorodyne, which had as she thought been prepared for her son, but which it turned out was undiluted. On discovering her mistake, Mrs. Arnold sent for Saunders, and gave her some antimony as an antidote. She was left, however, to go on her way, and not returning home at her usual time, inquiry was made for her, and she was found, between 10 and 11 o'clock, in a water-closet in the town, in a state of unconsciousness. Medical attendance was called in, and every attention was shown her, but she never rallied, and only lingered till 10 o'clock at night. An inquest was held on Monday morning, when a verdict of "Accidental death from an overdose of chlorodyne" was returned.—*London News.*

M. DEMARQUAY has eight times tied the lingual artery in the living subject. He recommends it as a preliminary to the removal of tumors occupying the deep parts of the tongue, to avoid hæmorrhage. He has three times tied both linguals to procure atrophy of cancerous tumors of the tongue and to prolong the life of the patients; and always with advantage, and without mischief. The best proceeding is that of Blandin Bédard, who, according to M. Demarquay, first proposed the ligature of the lingual artery; but Harvey foresaw the surgical use of ligaturing arteries in the treatment of tumors. M. Mirault (d'Angiers) first tied the lingual in France; then Flaubert, Roux, and Maisonneuve; Liston and Moore in England; and finally M. Demarquay, the author of the memoir here analysed.

THE CAUSE OF SCURVY.—The general view that scurvy is produced by an excess of common salt in the blood,

occasioned by a diet of salted meat exclusively, has received some confirmation, says the London Review, in the experiments lately conducted by M. Prussak of St. Petersburg. M. Prussak placed the web of a frog's foot under the microscope, so as to observe the passage of the blood through the smallest blood-vessels. He then injected a solution of salt beneath the frog's skin, and watched the effect on the vessels. He perceived that the blood-corpuscles distended the vessels, and gave rise to the patches of dark-colored extravasations, extremely like the peculiar livid blotches seen on the skin of scorbutic patients. Experiments on dogs and other animals appear to give the same results. It now remains to be shown why common salt should possess this peculiar action on the blood vessels. Most probably the explanation will be found in the excessive osmosis which occurs owing to the increased density of the blood.

CONTINUATION OF THE HEART'S ACTION AFTER DEATH.—A fresh interest has been recently given to this subject by a paper on the "Physiology of the Circulatory Functions," read before the International Medical Congress in Paris, by M. Marcelline Duval, Director of the Brest Naval Medical School. The paper contains the results of the experiments performed upon guillotined criminals in 1850, 1851, and 1866. They fully confirm, what hardly needed confirmation, the fact that the heart may beat after life is extinct, and that its contraction therefore is not of itself evidence that resuscitation is possible. The following is the translation of an extract from M. Duval's report, giving the appearances noticed:

"*Carotid Arteries.*—The first two bodies were brought to the dissecting-room; one five and the other six minutes after execution. In both the severed extremities of the common carotids rose at regular intervals and extended themselves beyond the level of the section of the neck and then retracted again, a movement which

might be compared to that of a good-sized artery upon which a ligature has been placed immediately after amputation. At each impulsions a small quantity of frothy, crimson blood escaped from the open extremities of the carotids. Blood flowed also from the internal jugular veins, equally frothy in character, but darker in color. The arterial shocks were feeble, but perfectly appreciable to the sight.

“*Heart.*—About seven minutes after death the chest was rapidly opened, and the beating of the heart could be perceived through the pericardium, which contained about an ounce and a third of a very clear, slightly yellowish liquid. The heart, left uncovered by the incision of the pericardium, was studied as it lay, before its action or position had been modified by contact or otherwise.

“*Movements of right and left Auricles.*—The left auricle is in repose upon the aorta, which it embraces. After a very short, but appreciable, time of rest, this appendix rises suddenly and leaves the aorta exposed, then falls rapidly and resumes its previous position. There is expansion of the auricle, as though it were distended by liquid, and during the expansion it becomes longer, and the fringes upon its edge assume a denticulated appearance until the auricle falls to its first position, when they approach one another again. This double movement, perfectly rhythmical, reproduced itself forty-eight times during the first minute, but its frequency rapidly grew less, and in the seventh minute it occurred only seven times. It should be also mentioned that, in the first subject, the right auricle pulsated strongly and regularly at the rate of forty-three or four times a minute, at first, and that the pulsations persisted an hour and a quarter, and were not interrupted by the removal of the stomach, the intestines, the diaphragm, and even of the lungs. The contraction of the ventricles was distinctly perceived, all their diameters becoming less and their surfaces gathering themselves into folds and wrinkles. Both con-

tracted at the same time, and in perfect accord, the contraction running from the base to the point of the heart."—*Boston Medical and Surgical Journal*.

THE NEW SYDENHAM SOCIETY.—The object of this society, as is well known, is to furnish medical works of value, and especially those which might not otherwise be obtainable, at the cost price of their publication. The same principle is maintained by the local secretaries; viz., to supply the books at the subscription price of "one guinea," in London, with the addition of the actual cost of importation. A year's subscription, at the present rate of exchange, will, in all probability, not exceed ten dollars in currency, (subject, however, to the fluctuations in gold and any unforeseen contingencies;) and this is much less than the price of importation through booksellers. Any surplus at the end of the year will be devoted to a reduction of the expenses of the ensuing year; and if any deficiency should occur, each subscriber will, of course, consider himself bound in honor to supply his share. No books are sent from the London office except upon prepaid order; early subscribers will therefore have the preference. Dr. F. J. Bumstead, No. 162 West 23d Street, the Local Secretary, will receive subscriptions for the present or any previous year, at the rate of ten dollars per annum.

DIED, in Paris, September 10th, from cerebral hemorrhage, aged 74, Dr. P. Rayer, one of the most eminent of the Paris Faculty. He was the founder and permanent President of the Biological Society, and has occupied many elevated positions, such as President of the Academy, Dean of the Faculty of Medicine, President of the General Medical Association, Physician to La Charité, Consulting Physician to the Emperor, &c. &c. He earned these elevated positions by incessant labor and indomitable industry. M. Rayer will long be gratefully remembered for his prompt apprecia-

tion of and the encouragement he afforded to youthful talent. It was under his tuition that were developed Claude Bernard, Ch. Robin, Tardieu, Gubler, Vulpain, Charcot, etc.

DEATH OF M. FLOURENS.—This eminent physiologist has just died, at the age of seventy-three. For many years he was at the head of the French experimentalists, and occupied the important office of Permanent Secretary to the Academy of Sciences. He was also a member of the Académie Française, a learned body restricted to forty members, all of whom have more or less distinguished themselves in literature and science. Flourens maintained that by proper management life in most cases could be prolonged to one hundred years; and yet, for some years past, he has been in feeble health and unable to continue his lectures at the governmental establishment, the Musée d'Histoire Naturelle.

The following paragraph was inadvertently omitted in connection with the article on Spontaneous Generation in the January number of the Journal, p. 380.

In connection with the above, it should be stated that, on the meeting of the French Academy on the 7th of October last, M. Donné, who has long and strenuously advocated the doctrine of spontaneous generation, recanted his views. He was led to this result by his last experiment in support of the doctrine of heterogeny. This experiment, like the many others he has from time to time described to the Academy, consisted in placing an egg under a receiver, then allowing water to enter the pores and replace the air, and finally in shaking together the yolk and the white, and allowing them to stand by for some time. Eggs exposed to these conditions for six months showed no traces of living beings even of the most "microscopic" dimensions.

ERRATA.

In Dr. Lidell's paper, last number of the Journal, page 403, line 25, for *tinged* read "turgid."

Page 407, line 3, for *nervous* read "venous."

BOOKS AND JOURNALS RECEIVED.

- Diseases of the Heart, their Diagnosis and Treatment.** By David Wooster, M.D. San Francisco. H. H. Bancroft & Co. 1867. 12mo., pp. 209.
- Plastics. A New Classification and Brief Exposition of Plastic Surgery.** By David Prince, M.D. Philadelphia: Lindsay & Blakiston. 1868. 8vo., pp. 96.
- Germinal Matter and the Contact Theory.** An Essay on the Morbid Poisons, their Nature, Sources, Effects, Migrations, and the Means of Limiting their Noxious Agency. By James Morris, M.D., Lond., &c. Second Edition. London: John Churchill & Sons. 1867. 12mo., pp. 111.
- A Practical Treatise on the Diseases of Children.** By D. Francis Condie, M.D. Sixth Edition, Revised and enlarged. Philadelphia: Henry C. Lea. 1868. 8vo., pp. 783.
- Chronic Diseases of the Larynx, with Special Reference to Laryngoscopic Diagnosis, and Local Therapeutics.** By Dr. Adelbert Tobold, University of Berlin. Translated and edited by George M. Beard, M.D., &c., New York: Wm. Wood & Co. 1868. 8vo., pp. 279.
- Pathological Anatomy of the Female Sexual Organs.** By Julius M. Klob, M.D., Professor at the University of Vienna. Translated by Joseph Kammerer, M.D., and Benjamin F. Dawson, M.D. New York: Moorhead, Simpson & Bond. 1868. pp. 299.
- On the Signs and Diseases of Pregnancy.** By Thomas Hawkes Tanner, M.D., F.L.S., &c. From the Second London Edition. Philadelphia: Henry C. Lea. 1868. 8vo., pp. 482.
- Treatise on Diseases of the Eye, Including the Anatomy of the Organ.** By Carl Stelwag Von Carion, M.D., Professor of Ophthalmology in the Imperial Royal University of Vienna. Translated from the Third German Edition, and edited by Charles E. Hackley, M.D., Surgeon to the New York Eye and Ear Infirmary, &c., and D. B. St. John Roosa, M.D., Clinical Professor of the Diseases of the Eye and Ear, in the Medical Department of the University of New York, &c. With an Appendix by the Editors. Illustrated by ninety-six wood engravings, and eighteen chromolithographs. New York: Wm. Wood & Co. 1868. 8vo., pp. 774.
- On the Pathology and Treatment of Albuminuria.** By William H. Dickinson, M.D., Cantab. London: Longmans, Green & Co. 1868. 8vo., pp. 265.
- Light, Its Influence on Life and Health.** By Forbes Winslow, M.D., D.C.L., &c. New York: Moorhead, Simpson & Bond. 1868. 12mo., pp. 200.
- The Treatment of Diseases of the Throat and Lungs by Inhalation; with a New Inhaling Apparatus.** By Emile Siegle, M.D. Translated from the German by S. Nickles, M.D. Cincinnati: R. M. Carroll & Co. 1868. 12mo., pp. 136.
- Braithwaite's Retrospect.** Vol. LVI. July-December, 1867. London: Simpkin, Marshall & Co.
- Braithwaite's Retrospect, (American Edition.)** W. A. Townsend & Adams. New York: 1868.
- The Half-Yearly Abstract of Medical Sciences.** Vol. XLVI. July-December, 1867. John Churchill & Sons. London: 1868.
- The Half-Yearly Abstract of Medical Sciences. (American Edition.)** Philadelphia: Henry C. Lea. 1868.
- Consumption in New England and Elsewhere; or Soil Moisture one of its Chief Causes.** Address delivered before the Massachusetts Medical Society. By Henry J. Bowditch, M.D. Second Edition. Boston: David Clapp & Son. 1868. 8vo., pp. 154.
- Lectures on Orthopædic Surgery, delivered at the Brooklyn Medical and Surgical Institute.** By Louis Bauer, M.D., M.R.C.S., etc. Second Edition, Revised and Enlarged. New York: William Wood & Co. 1868. 8vo., pp. 336.
- Felix von Niemeyer's Clinical Lectures on Pulmonary Phthisis.** Translated by permission of the author, from the Second German Edition, by J. L. Parke. New York: Moorhead, Simpson & Bond. 1868. 12mo., pp. 116.

The following Journals are received in Exchange :

The London Lancet.
 The Medical Times and Gazette.
 The Medical Press and Circular.
 The British Medical Journal.
 The British and Foreign Medico-Chirurgical Review.
 The Medical Mirror.
 The Edinburgh Medical Journal.
 The Glasgow Medical Journal.
 The Dublin Quarterly.
 The Journal of Cutaneous Medicine.
 The Journal of Anatomy and Physiology.
 The Journal of Mental Science.
 The Anthropological Review.
 The American Homœopathist.
 The American Journal of Medical Science.
 The American Journal of Dental Science.
 The American Journal of Homœopathic Materia Medica.
 The American Journal of Pharmacy.
 The American Literary Gazette and Publishers' Circular.
 The American Eclectic Medical Review.
 The American Naturalist.
 The Atlanta Medical and Surgical Journal.
 The Boston Medical and Surgical Journal.
 The Boston Journal of Chemistry.
 The Buffalo Medical and Surgical Journal.
 The Canada Medical Journal.
 The Chemical News, and Journal of Physical Sciences.
 The Chicago Medical Examiner.
 The Chicago Medical Journal.
 The Cincinnati Medical Repertory.
 The Cincinnati Lancet and Observer.
 The Dental Cosmos.
 The Detroit Review of Medicine and Pharmacy.
 The Druggist and Chemical Gazette.
 The Galveston Medical Journal.
 The Humboldt Medical Archives.
 The Herald of Health.
 The Hahnemannian Medical Monthly.
 The Journal of Materia Medica.
 The Leavenworth Medical Herald.
 The Medical Investigator.
 The Medical News and Library.
 The Medical Record.
 The Medical Gazette.
 The Nashville Journal of Medicine and Surgery.
 The New Orleans Journal of Medicine.
 The Philadelphia Medical and Surgical Reporter.
 The Pacific Medical and Surgical Journal.
 The Quarterly Journal of Psychological Medicine.
 The Richmond Medical Journal.
 The St. Louis Medical Reporter.
 The St. Louis Medical and Surgical Journal.
 The United States Medical and Surgical Journal.
 The Western Journal of Medicine.
 The Cultivator and Country Gentleman.
 The Nation.
 The Round Table.
 The Scientific American.
 The Historical Magazine.





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